THE INDUSTRY'S RECOGNIZED AUTHORITY

ROCK PRODUCTS

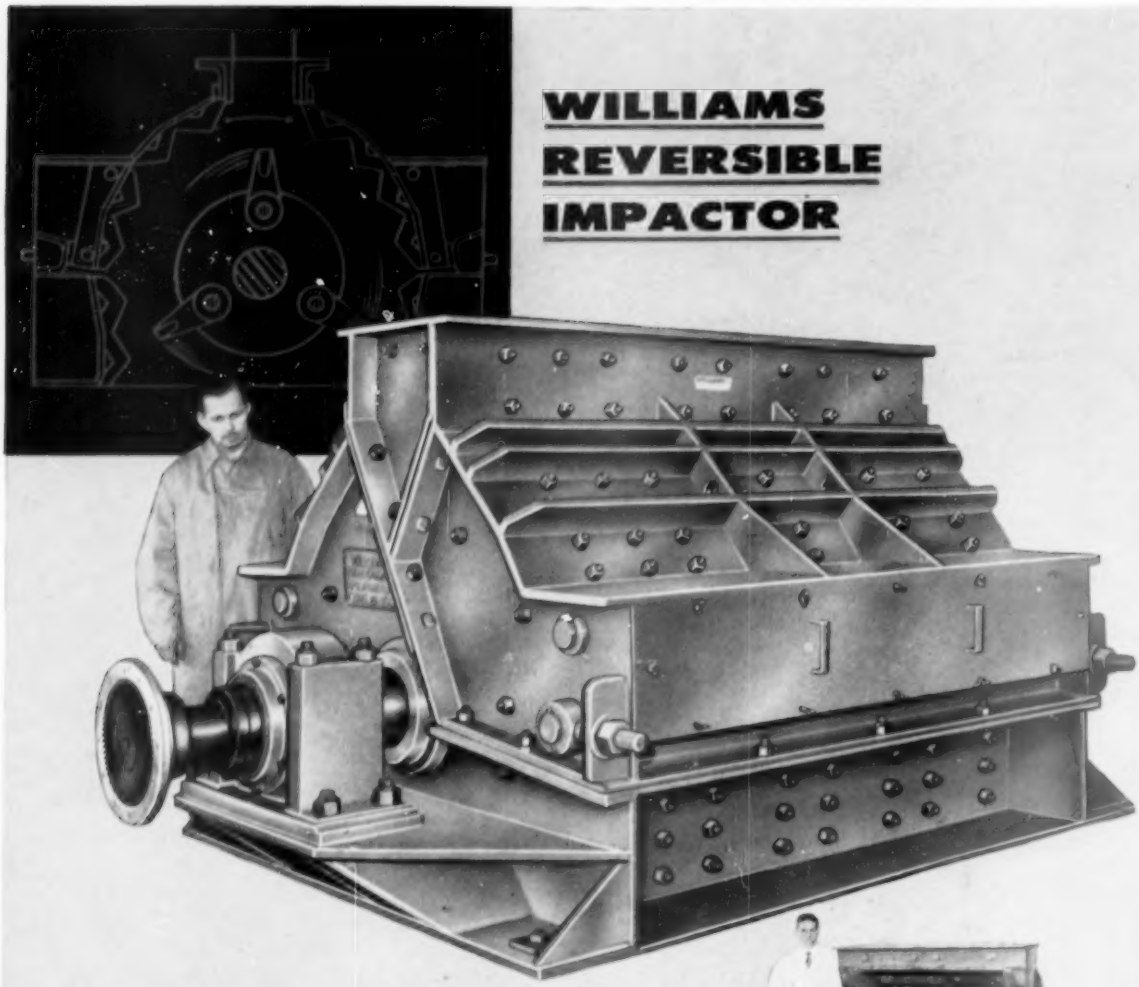
LARGEST PRODUCER CIRCULATION IN THE HISTORY OF THE FIELD

Permanente Cement Company's cement distribution plant in Seattle, Wash.

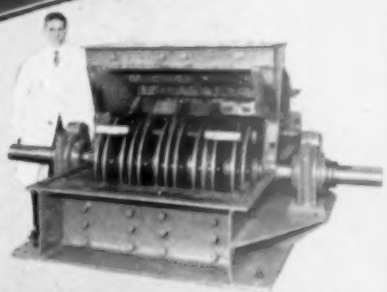
ANNUAL FORECAST and Road Show Program Issue

JANUARY 1957

WILLIAMS REVERSIBLE IMPACTOR



- 100% Impact Reduction
- No Friction Or Abrasion
- Unobstructed Discharge
- Less Upkeep Expense

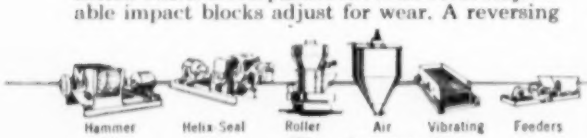


Internal view showing manganese steel impact blocks, hammers and liners. Rugged, heavy steel plate construction. Extra large shafts are mounted in oversize bearings sealed in self-aligning housings.

Unequalled For Secondary Grinding

Reduces limestone and material of similar hardness to $1\frac{1}{2}$", $\frac{3}{4}$" or smaller. Properly adjusted, the Williams Impactor makes excellent material with the proper percentage of fines for road base course. Unusually low upkeep expense as reduction is 100% by impact. Material is fed to enter between the hammers and is thrown against the impact blocks setting up a repeated ricochet action which accomplishes the reduction. Adjustable impact blocks adjust for wear. A reversing switch on motor permits rotating hammers in either direction, to the left today and to the right tomorrow, thereby giving double hammer life. No grates are used. Entire bottom is open permitting unobstructed discharge of crushed material and less wear and tear. A size for every job. Let us tell you about one for your use.

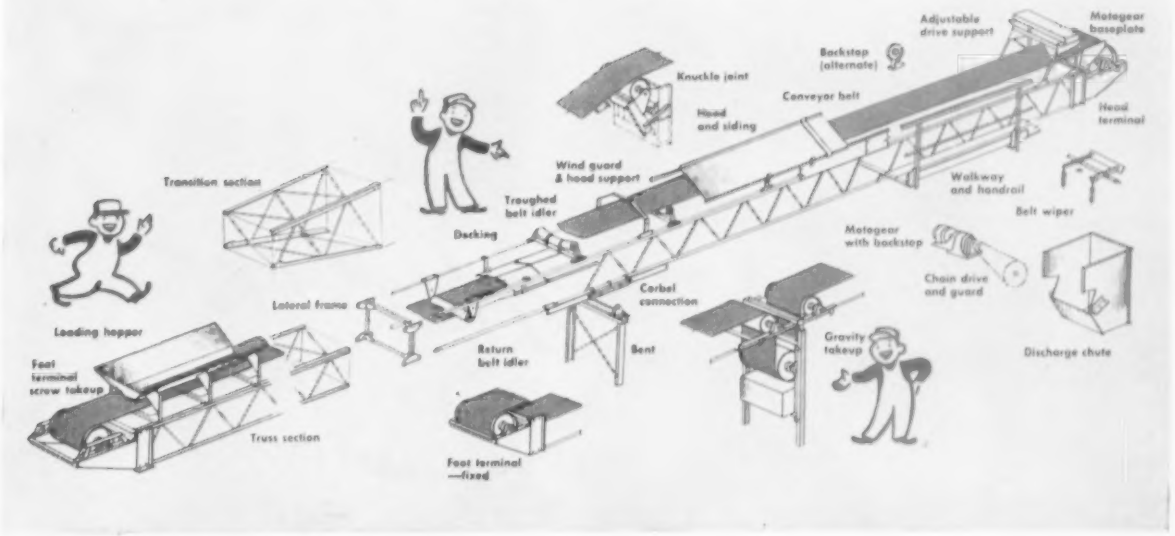
WILLIAMS PATENT CRUSHER & PULVERIZER CO.
800 ST. LOUIS AVE. St. Louis 6, Mo.



WILLIAMS
CRUSHERS · GRINDERS · SHREDDERS
Oldest and Largest Manufacturers of Hammer Mills in the World

Enter 1403 on Reader Card

THESE STANDARD COMPONENTS ARE ALL AVAILABLE TO MEET YOUR INDIVIDUAL REQUIREMENTS



NOW! The advantages of engineered belt conveyors in a LINK-BELT PRE-BILT PACKAGE

easy selection

Your Link-Belt representative will help you select the best combination of PRE-BILT sectional belt conveyor components.

Standard 18, 24, 30 and 36-inch widths need no special engineering

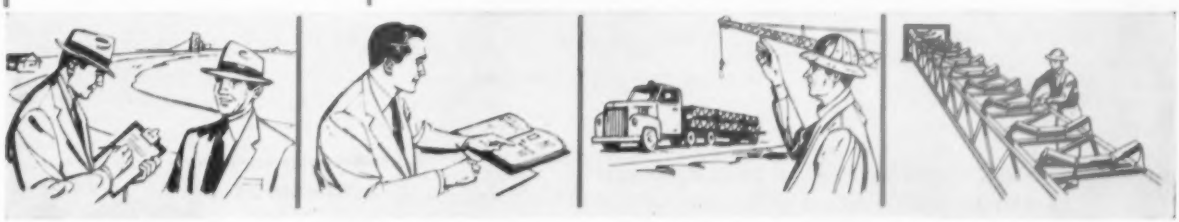
Here's an economical, standardized belt conveyor "package" . . . ready to meet the majority of belt conveyor needs and perform dependably for years and years. It combines standard Link-Belt products with sectional truss frames and steel supporting bents.

Book 2579 has further data on Link-Belt PRE-BILT conveyors . . . with drives up to 40 hp and 24 and 42-inch truss depths. Write today, or ask for a copy at your nearest Link-Belt office.

LINK-BELT

14.114

BELT CONVEYOR EQUIPMENT



prompt quotations

He will prepare a comprehensive and accurate estimate of requirements for installations that permit "on-the-ground" survey.

simplified purchase

Parts are standardized, interchangeable, all available from one supplier. Link-Belt representative can furnish all data.

quick delivery

PRE-BILT conveyors are built at nine strategic locations throughout the country and are shipped from the plant nearest you.

fast installation

Can be readily handled by your own erectors in most cases. Link-Belt can also furnish complete erection service and supervision.

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

Enter 1417 on Reader Card

➔ Take a long look into the future. You'll see constantly growing industrial activity and millions of tons of *power-packed* Bituminous produced to sustain it, with *billions* still in reserve! B&O is a keystone to this vital supply and demand. The coal fields it serves hold proved, usable reserves of billions of tons of Bituminous for every purpose.

Today, tomorrow or decades ahead you may be sure that B&O Bituminous can be *your* best source of stable-low-cost power. It will pay you to use this *fuel with a future* NOW! *Ask our man!*

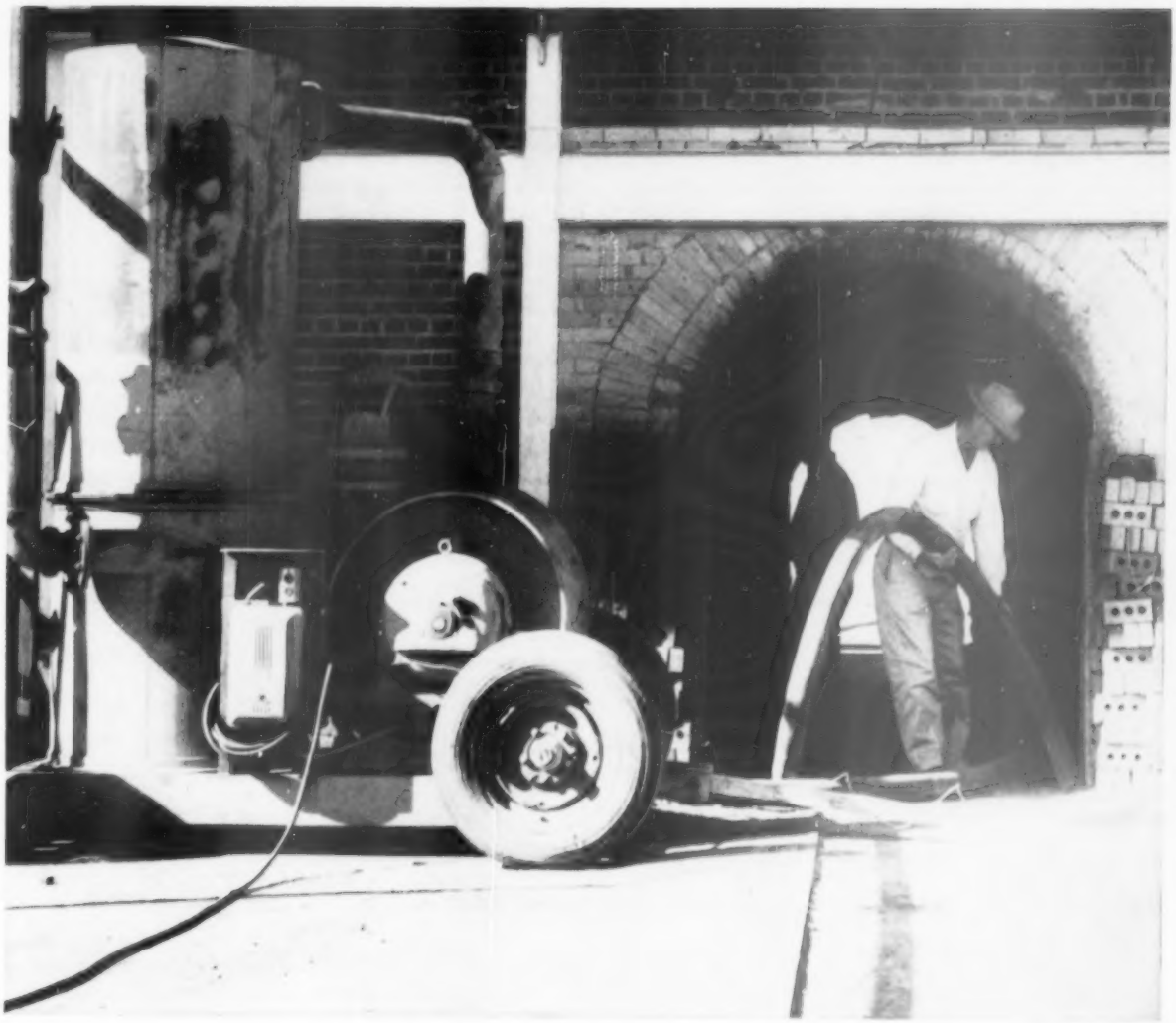
CONTACT OUR COAL TRAFFIC REPRESENTATIVE!

You'll receive details in the most efficient, low-cost Bituminous coal for your particular requirements.
COAL TRAFFIC DEPARTMENT B&O RAILROAD
Baltimore 1, Md. LExington 9-0400

BALTIMORE & OHIO RAILROAD

Enter 1441 on Reader Card

B.F.Goodrich report:



Hose swallows pieces of hot brick

B. F. Goodrich improvement in rubber brought extra savings

Problem: That man is using a king-size vacuum cleaner to clean out brick kilns. Powerful suction from the machine whisks up hot brick chips, sand and other sharp particles, just as a home vacuum sucks up dirt.

But for a while, this looked like one of those good ideas that just wouldn't work. A flexible rubber hose had to be used, and it couldn't stand the gaff. The sharp pieces of brick wore holes through one hose in *only 30 minutes.*

What was done: When a B. F. Goodrich man heard about the trouble, he suggested a new hose made by B. F. Goodrich. It is made with a special lining of the toughest wear-resisting rubber known. It's so tough that, on many jobs, this rubber outlasts the hardest steel 10 to 1.

Savings: The B. F. Goodrich hose was tried. It has now given more than two years of service, and is still in excellent condition. No holes, no repairs, no problems of any kind.

Extra benefits: B. F. Goodrich has made hundreds of improvements in dozens of kinds of hose to make them last longer, cost less. Most improvements, while making the hose stand more abuse, have also made it more flexible and easier to handle.

Where to buy: Your B. F. Goodrich distributor has many more facts about this brick company's problem and the hose used to solve it. And as a factory-trained specialist in rubber products, he *can* answer your questions about *all* the rubber products B. F. Goodrich makes for industry. *B. F. Goodrich Industrial Products Company, Department M-830, Akron 18, Ohio.*

B.F.Goodrich

INDUSTRIAL PRODUCTS

Enter 1420 on Reader Card

Fifty One Years . . . . 1906-1957 . . . . of Aid to Business Progress

YOU EXPECT MORE EDITORIALLY FROM ROCK PRODUCTS AND YOU GET IT EVERY MONTH

ROCK

CONTENTS

ROCK PRODUCTS

CONCRETE PRODUCTS

DEPARTMENTS

ROCK PRODUCTS is published monthly by MACLEAN-HUNTER Publishing Corporation, 79 W. Monroe St., Chicago 3, Illinois; P. D. Allen, President; Copyright, 1957, by Maclean-Hunter Publishing Corporation. Entered as second-class matter, Jan. 30, 1930, at the Chicago, Ill., post office under the act of Mar. 3, 1879. Additional entry at Long Prairie, Minn.

SUBSCRIPTION INFORMATION
Subscription Price: United States and Possessions, Canada one year, $3.00; two years, $4.00; three years, $5.00. Pan American, one year, $8.00; two years, $14.00; three years, $20.00. All other foreign one year, $12.00; two years, $22.00; three years, $30.00. Twenty-five cents for single copies. Canadian subscriptions and remittance may be sent in Canadian funds to ROCK PRODUCTS P. O. Box 100, Terminal "A," Toronto, Canada.

To Subscribers—Date on wrapper indicates issue with which your subscription expires . . . In writing to have address changed, give old as well as new address. ROCK PRODUCTS is indexed regularly by Engineering Index, Inc. and the Industrial Arts Index.

PROCESS PRODUCTS

JANUARY 1957

In This Issue . . .

Our Industries Look Ahead

Rock products people view the future with cautious optimism and are in tune with the growing economy.

Productivity On Parade

Here's a preview of the newest labor saving equipment that will help speed the tremendous road program.

Fluorspar Company Expands

Minerva's fluorspar's division builds in efficiency when faced with declining markets and stiff competition.

DISTRICT OFFICES

EASTERN AREA
Reginald W. Davis, Manager;
Charles H. Daly, Assistant
522 Fifth Ave., New York 36
Tel. Murray Hill 2-7888

CENTRAL AREA
George F. McKay, Manager,
Hanna Bldg., Cleveland 15,
Tel. Main 1-4362

WESTERN AREA
George K. Konz, Manager;
Gerald A. White,
Harold R. Dunlop,
Representatives,
79 West Monroe St.
Chicago 3,
Tel. Randolph 6-2802

SAN FRANCISCO
Duncan Scott & Company
Mills Bldg., San Francisco 4,
Tel. Garfield 1-7950

LOS ANGELES
Duncan Scott & Company
2978 Wilshire Blvd.
Los Angeles 5,
Tel. Dunkirk 8-4151

LONDON, ENGLAND
Harold F. Charles, Managing Director, Maclean-Hunter, Ltd.
Wellington House, 125 Strand
London, W.C. 2

GERMANY
Georg J. Linder, Wittelsbacher Allee 60, Frankfurt Am. Main.
James K. Binder, American Business Journals,
Zechingerstrasse 28,
Berlin-Wilmersdorf.

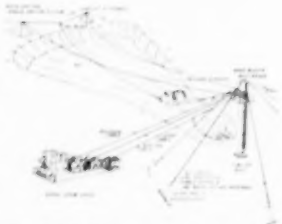
Increase Sand and Gravel Profits–Dig *and Haul* In One Operation With A SAUERMAN MACHINE

Digging and hauling are reduced to one continuous operation by using either a Sauerman DragScraper or Slackline Cableway. By combining the two basic steps of material flow, equipment and labor costs are halved—or even more. A single machine, controlled by one man, does the same job as the multiple equipment required by other methods.

Profitable handling is further assured by a low maintenance cost of 1½ cents per cu. yd. for an average size installation. Larger machines drop this cost still lower. Important, too, is the money saved on power. You pay only the cost of moving the actual digging tool—the Crescent DragScraper or Slackline bucket. Heavy machines with limited handling-to-dead weight capacity are eliminated.

General Handling, Wet or Dry— Pit or Hill Excavation and Reclamation

3-yd. DragScraper digs and hauls sand and gravel from pit to plant hopper over a distance of 400 ft.



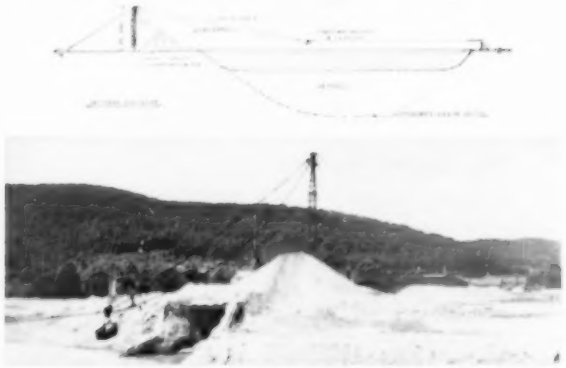
A DragScraper is recommended for these and similar jobs. This machine handles the toughest digging and operates on a hillside or underwater with as much facility as dry level ground. It hauls directly to hopper, crusher or storage pile.

Operation is simple and safe. An inexperienced man can be quickly trained to do the job. Control station and hoist are remotely located from any hazardous area.

Sauerman DragScrapers range in size from ⅓ to 15 yds. They can be worked over spans of 1000 ft.

Crescent approaches hopper in front of tubular mast. Inset shows operator at hoist controls.

Deep Digging, Underwater Recovery— Conveying to High Delivery Point



This 1½-yd. Slackline Cableway is digging in 70 ft. of water and conveying to stockpile on an average haul of 600 ft.

When deep digging is required—or anticipated in the future—a Sauerman Slackline Cableway is the best machine. This powerful excavator can dig 100 ft. or more below water, lift its load and deliver to a high pile up to 1000 ft. away. This surge pile can be held in readiness for plant needs.

The bucket inhauls at high speed and dumps automatically. The dumping point is determined by a stop button on the track cable. Gravity returns the bucket to the digging point completing the fast operating cycle.

Sauerman Slackline Cableways range in size from ⅓ to 3½ cu. yds. Now available with torque convertor power, the Slackline is increasing its production over 25%.

Bucket automatically discharges onto a 60-ft. high cone pile. Mast in foreground rises 90 ft.

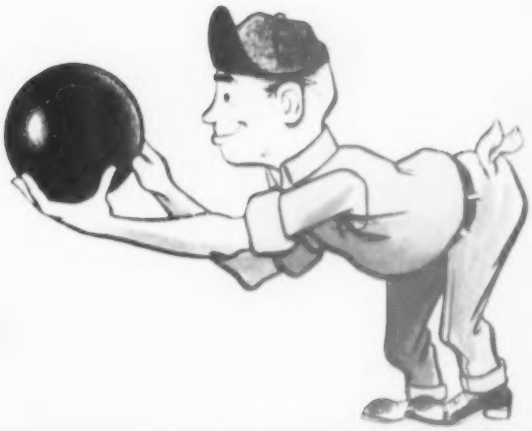
The best Sauerman Machine for your plant is governed by the nature of the deposit, location of material, the depth and plant layout. Why not consult Sauerman engineers about your plant? Their recommendations will be based on almost fifty years of sand and gravel excavating machinery experience. Ask for Catalog A (DragScrapers) and C (Slackline Cableways).

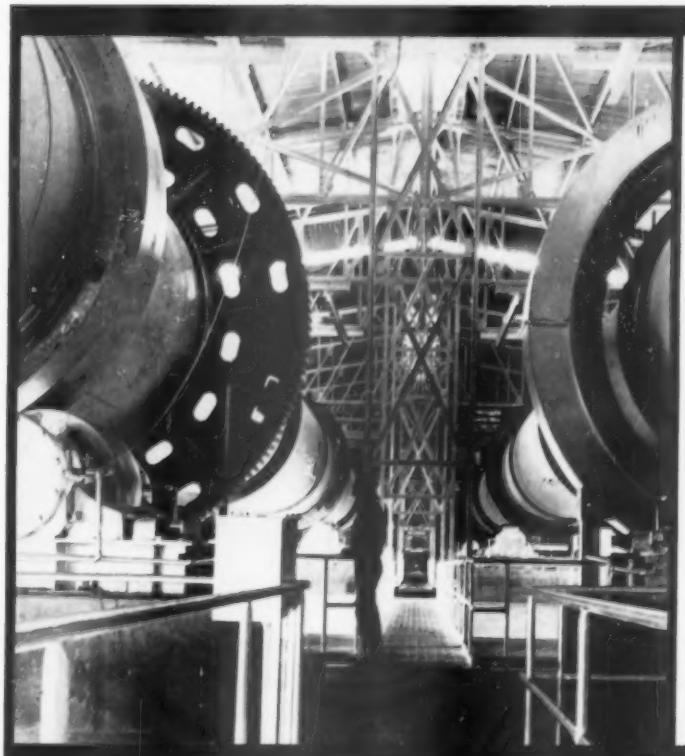
SAUERMAN BROS. INC. 630 SOUTH 28TH AVENUE • BELLWOOD, ILLINOIS

CRESCENT SCRAPERS • SLACKLINE and TAUTLINE CABLEWAYS • DUROLITE BLOCKS

Enter 1421 on Reader Card

The Bowling Champ
buys a custom-made ball
because he gets
something **EXTRA**





the profit-wise cement producer

BUYS TRAYLOR ROTARY KILNS for the same reason

Traylor Rotary Kilns have a world-wide reputation for delivering a bonus of extra production over other kilns of comparable capacity. "Traylor-made" for the individual installation, Traylor Rotary Kilns have been built to 12' 0" in diameter and to 450' 0" in length. Send for Traylor Bulletin No. 11-121 containing complete information.

TRAYLOR ENGINEERING & MFG. CO.
904 MILL ST., ALLENTOWN, PA.
Sales Offices: New York—Chicago—San Francisco
Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P.Q.

the experts agree . . . there's nothing like

TRAYLOR-MADE

equipment for peak performance

A Traylor leads to greater profits

Enter 1418 on Reader Card

"Not what we say, but...

WHAT OPERATORS SAY ABOUT SECO SCREENS..."

Wm. Spiegel & Son

BIRD RIVER ROAD BALTIMORE 29, MD.

Screen Equipment Company, Inc.
1754 Walden Avenue
Buffalo 25, New York

Dear Sirs:

Thank you for your inquiry of May 21st. in reference to our 3' x 8' SECO screen.

We put the screen in operation on Sept. 6, and as of this date we have screened approximately 20,000 tons of sand. From the first moment that we saw it, there was no doubt in our mind that this screen would do the job for us.

After we saw it in operation, we were more than pleased and amazed how smooth and quiet it ran. We have learned a lot about vibrating screens in the few years we have been screening sand and your screen has everything a vibrating screen should have. Our operation here is not too large therefore we wanted a screen that would be small, light, the price right but still would do the job. Your screen fits those specifications to a "T". During winter months we use ¼" opening wire cloth and during summer months we use ¼" opening wire cloth on top $\frac{3}{16}$" on bottom. We have always screened 30 tons or over per hr. sand being wet or dry.

I guess I will never stop praising this screen and thanking myself for deciding to get one. As I told your representative from Philadelphia, the only thing wrong with the screen is the fact that we didn't have it five years sooner.

Sincerely,
William Spiegel & Son

Norman J. Spiegel

Norman J. Spiegel

Send for Catalog 204

This fully illustrated, informative catalog describes the Seco Vibrating Screen line, and will help you determine the right screen for your particular job.

SECO

TRUE CIRCULAR ACTION

VIBRATING SCREENS

SCREEN EQUIPMENT COMPANY, INC.

BUFFALO 25, N. Y.

High Tonnage and Smooth Performance

CLOSNER EQUIPMENT COMPANY

1415 WEST POPLAR ST. SAN ANTONIO 7, TEXAS

PERSHING 4-4269

Screen Equipment Co., Inc.
1750 Walden Avenue
Buffalo 25, New York

October 5, 1956

Attention Mr. N. J. Gleiser
Subject: Collins Construction Company of Texas

Dear Nels:
Since receiving your letter of August 31, 1956 regarding this customer, we have obtained additional information concerning material handled with their 5' x 10' double-deck, Type "H" screen.
About a week ago, they reported that in one day a total of 4,600 cubic yards of material was put through the plant in approximately 9⅓ hours running time. This, of course, checks out at 494 yards per hour, and with a cubic foot weight of 85 pounds we come up with 568 tons per hour.
As you probably will recall, all material put through the plant goes over the screen. Depending upon pit conditions, the amount of material going through both decks of the screen will vary. However, with production at the above rate, it is estimated by the customer that in the vicinity of 60% of the material passes through the 4" top deck opening and the 1½" bottom deck opening. From my observation, the bulk of this percentage goes through in about the first four feet of the screen decks.
Best regards.

Sincerely yours,
CLOSNER EQUIPMENT COMPANY

George W. Closner

GWC:rp

Long Life Service

BELTON SAND AND GRAVEL CO., Inc.

BELTON, TEXAS

24 July, 1956

Mr. C. S. Fielding
Screen Equipment Co.
1750 Walden Ave.
Buffalo, N.Y.

Dear Sir:

We would like very much to have you quote us a price on the following SECO vibrating screen.
A 3' x 8' single deck, Type MS, scalping screen. Screen to have built in frames and arch deck to use crimped edge cloth and draw plates. Frames and draw plates built so as to take two 3' x 4' cloth sections.
We have used a SECO screen for the past ten years and are very well pleased with it.
Thank you for your attention to this matter.

Yours truly,
Belton Sand and Gravel, Inc.

By:
L. P. Heard, Jr.

Ohio Asphaltic Limestone Co.

NEW VIENNA, OHIO

PHONE HILLSBORO 771
LYNCHBURG 91R2

May 12, 1956

Screen Equipment Co.
1750 Walden Ave.
Buffalo 25, New York

Attn: Mr. C. S. Fielding

Dear Sir:

I wish to thank you, Mr. Fielding, for your interest and help. I believe yours is the best Company we have ever had dealings with in so far as the service you give to your customers and the interest you show in their problems. Could you give us a tentative shipping date on the new panels.

Ohio Asphaltic Limestone Co.

Yours truly,

W. C. Mason

W. C. Mason
Pres.

WCM/LB

Enter 1508 on Reader Card

What's Happening

IN OTHER FIELDS OF INTEREST TO THE ROCK PRODUCTS INDUSTRY

January, 1957

Fire-resistant hydraulic fluids are finding increasing demand in industry as hydraulic systems are increasing in the trend to automation. Sales in this field have grown from $500,000 in 1948 to $10 million annually now, with a further five-fold growth seen for the next ten years by a chemical company spokesman. According to the **Wall Street Journal**, the fire-resistant fluids have found their biggest use in basic metal-working industries. But airlines, utilities, refineries and other industries use them too. Industry uses two main types of fire-resistant fluids, hydrolubes—mixtures of water, ethylene glycol and other additives—and phosphate esters, complex organic chemicals. They are expensive, the hydrolubes ranging in price from $2.25 to $2.75 per gal., and the phosphate esters, from $3.50 to $4 per gal. Those adopting the new fluid are said to feel that the safety factor is worth the extra cost.

A solution to leaking roofs has been proclaimed by Owens-Corning Fiberglas Corp., completing a 10-year research program with announcement of fiberglas roofing material. In production, glass fibers are blown onto a felt sheet, which then is treated with plastic. Roofing manufacturers then treat the rolls with asphalt. During the roofing process, finished sheets of the material are laid on the roof and hot asphalt penetrates through pores in the material, binding various layers together. Cracking through the full thickness of the roofing material is said to have been eliminated by use of the tough glass fiber. Research at Owens-Corning is being continued for the production of glass fiber shingles and to study the effects of asphalt and other bitumen on glass.

Compressed concrete piling has been tested successfully on the Lulu Island site of the planned Lafarge Cement Co. plant by Porr Piling (Canada) Ltd., a Vancouver firm. Lack of solid earth made use of timber piling inadvisible, since timber piles would have to be driven 120 ft. in order to carry a 40-ton load. A 20-ft. concrete column, packed by a ramrod into a steel casing (removed as the concrete was poured) expanded to a larger size than the original casing hole. The pile was test-loaded up to 245 tons with the following settlement: 100 tons, 0.04 in.; 150 tons, 0.06 in.; 200 tons, 0.3 in.; 245 tons, 0.6 in.

A new bauxite and alumina industry in French West Africa will be established by Aluminium, Ltd., Montreal, through its subsidiary, Bauxite du Midi. An initial investment of $100 million provides for plans which include construction of a chemical plant with a capacity of 250,000 t.p.y. of alumina, and development of bauxite deposits in the northwest area of Guinea. The output will supply new smelters being built in Quebec by Aluminium, Ltd.

Heavy construction awards, nationally, totalled $19,744 million for the first 47 weeks of 1956, as reported in **Engineering News-Record.** This was an increase of 16 percent above the corresponding period in 1955.

Transformation of soil and sand into a solid stone-like material by the use of chemicals was foretold by Charles Allen Thomas, president of Monsanto Chemical Co., to a group of New York investment dealers. A chemical engineer, supplied with an appropriate chemical formula, will replace the contractor in supplying a foundation for a building, just by injecting quantities of the chemical into the ground when the excavation has been made. The field of synthetic inorganic polymers holds the answer to this supposition, stated by others from time to time, but now approaching reality. Another advance in the foreseeable future mentioned by Mr. Thomas is a new type of adhesive that will replace the building nail. A chemical agent that can be squeezed out of a tube-like tooth paste will join structural pieces as though it were a part of them, he said.

A process that could make possible a wider use of glass plastics in industry, now being used to make reusable military shipping and storage containers, has been reported. High-speed production techniques are said to have been applied to the molding of fibrous glass reinforced products, resulting in low-cost operation. Products that may be made by the process are automobile bodies, luggage, boats, bathtubs and other items that must have ribs or flanges for fastening. The Pressurform Co., Swarthmore, Penn., has been organized to license the process. So far, licenses have been given to an affiliate, Pressurform Container Corp., which will produce for demonstration purposes, and Banner Fiberglass Products Corp., Paterson, N.J., which will make radar shipping containers.

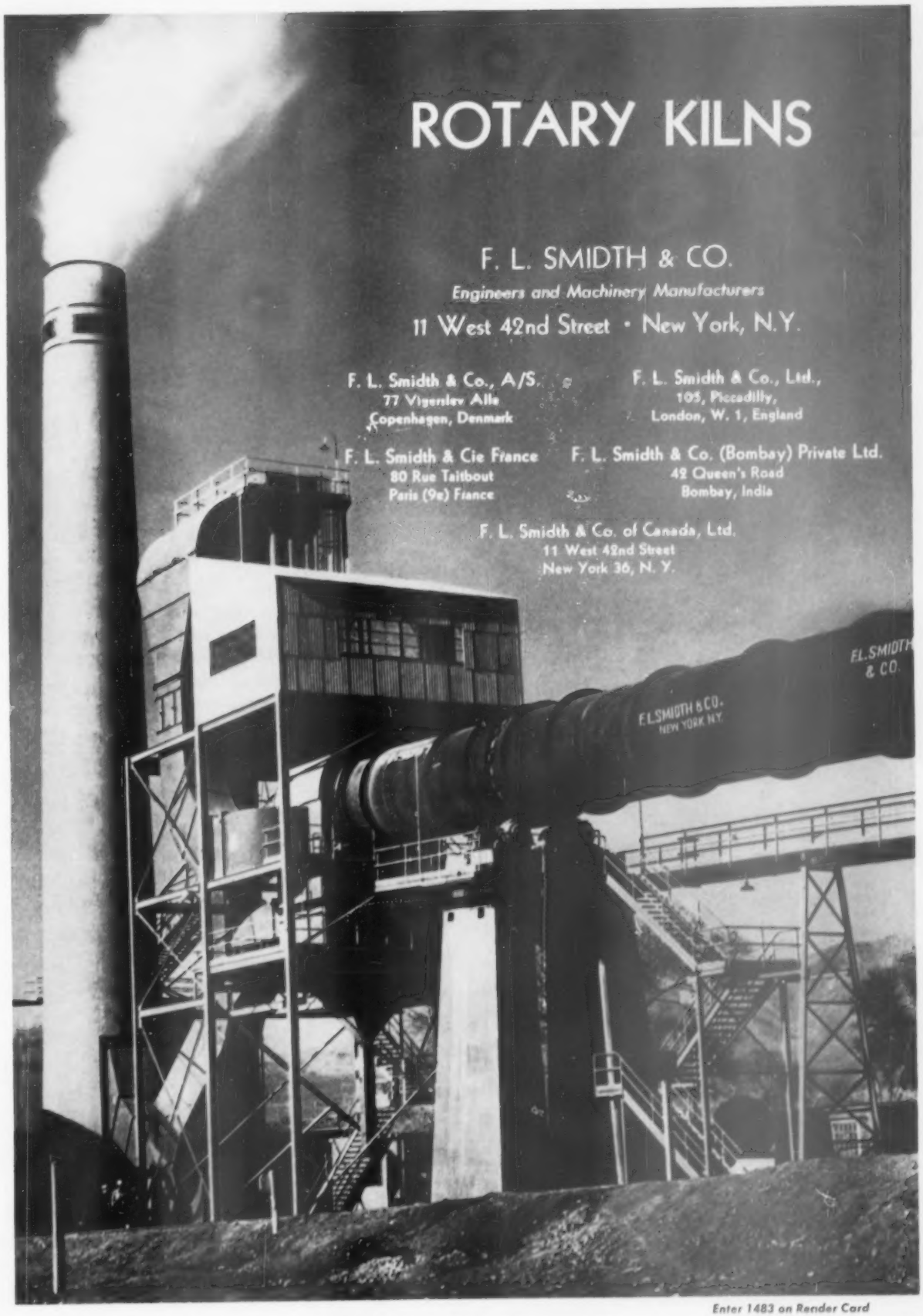
Figures indicating an increase in bulk shipment of cement have been reported by **Wall Street Journal.** R. K. Morgan, Detroit, Mich., Fruehauf Trailer Co. specialist in bulk movement, says that sales of trailers for bulk shipments of dry materials will rise to $2 million in 1956, as compared with $500,000 a year ago. By 1960 sales are expected to reach $5 million. Trailmobile, Inc., Cincinnati, Ohio, subsidiary of Pullman, Inc., has increased production of tank trailers by 19 percent between 1952 and 1955. From Fuller Co., Catasauqua, Penn., subsidiary of General American Transportation Corp., comes word that the number of Airslide rail cars in use or on order has almost doubled since last February.

Contract awards for the 37 states east of the Rockies totalled $21,147,472,000 for the first 10 months of 1956, up 6 percent over the corresponding period of 1955, according to an **F. W. Dodge** report. Nonresidential contracts were $7,653,084,000, up 8 percent; residential, $8,751,101,000, up less than 1 percent; and heavy engineering, $4,743,287,000, up 14 percent.

A ceramic magnet, called Ferroxdure, has been patented by North American Philips Co., New York, N. Y. Said to be practically impossible to demagnetize once it has been polarized, Ferroxdure is intended for use in refrigerator latches, loudspeakers, motors, oil filters and television.

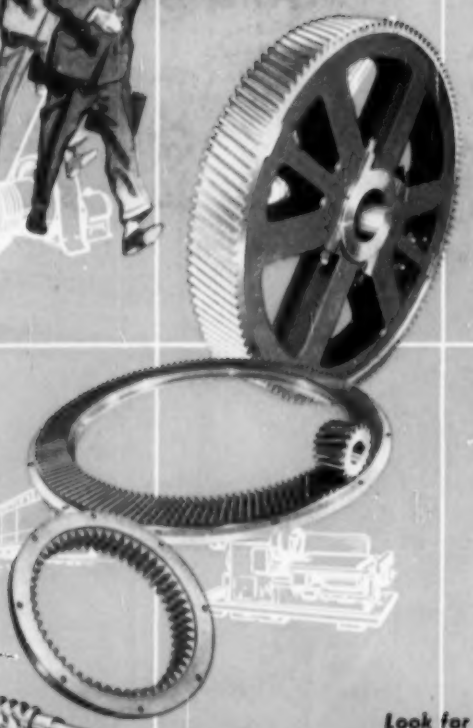
Accustomed as they are to heights, The Swiss are looking forward to the erection of the tallest building in the world. A reinforced concrete structure 1800-ft. tall will be built in Lausanne in time for the opening of the 1964 Swiss National Exhibition. The cost has been estimated at $4.6 million.

THE EDITORS



Enter 1483 on Reader Card

...22,461 SALESMEN on the job every day for ILLINOIS GEAR



The more than 22,461 customers of ILLINOIS GEAR . . . *and every one a satisfied customer* . . . are the hardest working salesmen ever.

Gears they use are on the job every day . . . telling the story of outstanding quality and performance that characterizes Illinois Gears.

The great array of fine equipment and machinery of which they are a part is indicative of the wide range of types and sizes of Illinois Gears . . . America's *most complete line of gears.*

Regardless of the service, whether it's gears for rotating massive shovels, or gears that control delicate precision equipment — depend on ILLINOIS GEARS.

Look for this mark ILLG® *the symbol on finer gears*

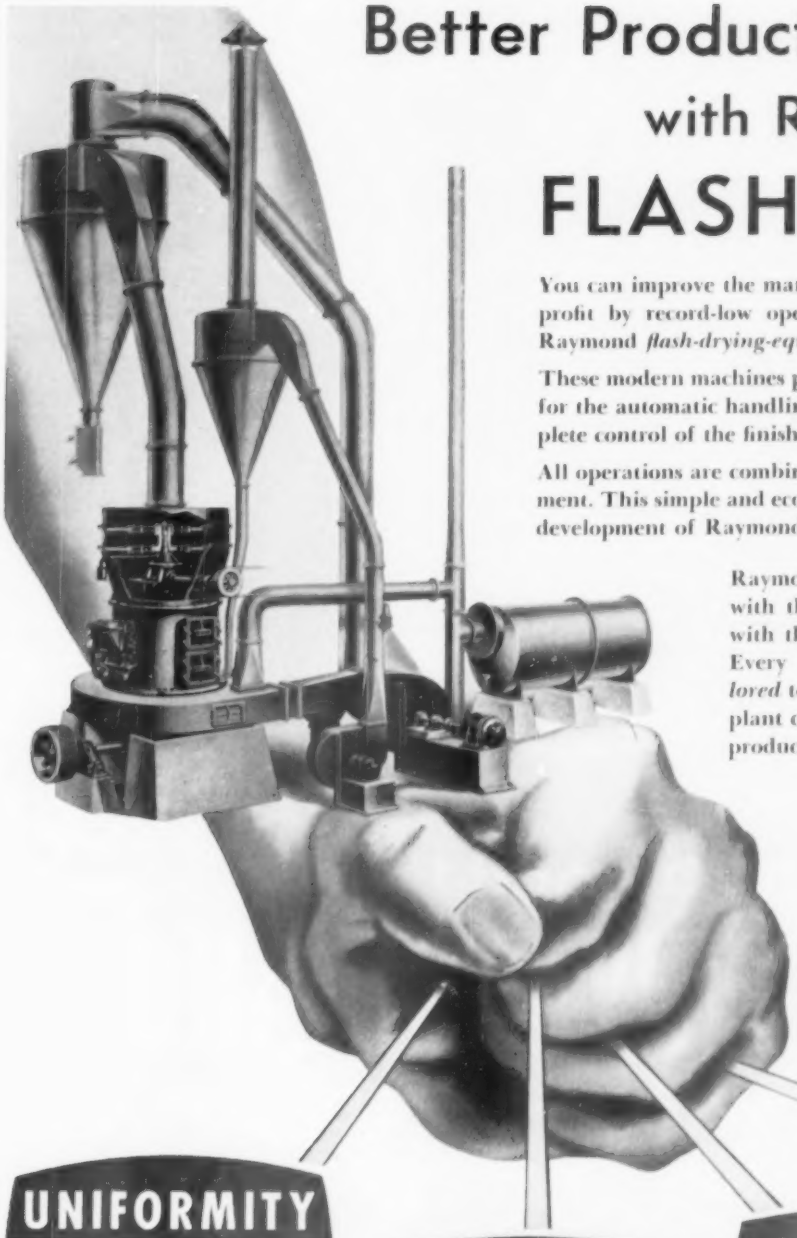
ILLINOIS GEARS® Reg. U.S. Pat. Off.

Gears for Every Purpose ... one gear or 10,000 or more

ILLINOIS GEAR & MACHINE COMPANY

2108 NORTH NATCHEZ AVENUE • CHICAGO 35, ILLINOIS

Better Product CONTROL with RAYMOND FLASH DRYING



You can improve the marketability of your product and profit by record-low operating costs when you install Raymond *flash-drying-equipped* pulverizing mills.

These modern machines provide a clean, dust-free system for the automatic handling of the material and for complete control of the finished product.

All operations are combined in one single unit of equipment. This simple and economical method is an exclusive development of Raymond engineers.

Raymond Flash Drying is available with the Roller Mill, as shown, also with the Imp Mill or the Cage Mill. Every Raymond installation is *tailored* to individual requirements as to plant capacity, nature and fineness of product, moisture removal.

For further details and types of materials handled, write for Catalog No. 82.

FINENESS

Whizzer air separation gives instant fineness control over wide range of classification by one simple adjustment.

UNIFORMITY

Close selection of fines and continuous return of the oversize to grinding chamber for further reduction, maintain consistent uniformity.

TEMPERATURE

Short retention time and relatively small amount of material in system, insure fast and close temperature control.

DRYNESS

Desired percentage of moisture is removed by Flash Drying simultaneously with the grinding operation.

COMBUSTION ENGINEERING, INC.

Raymond Division

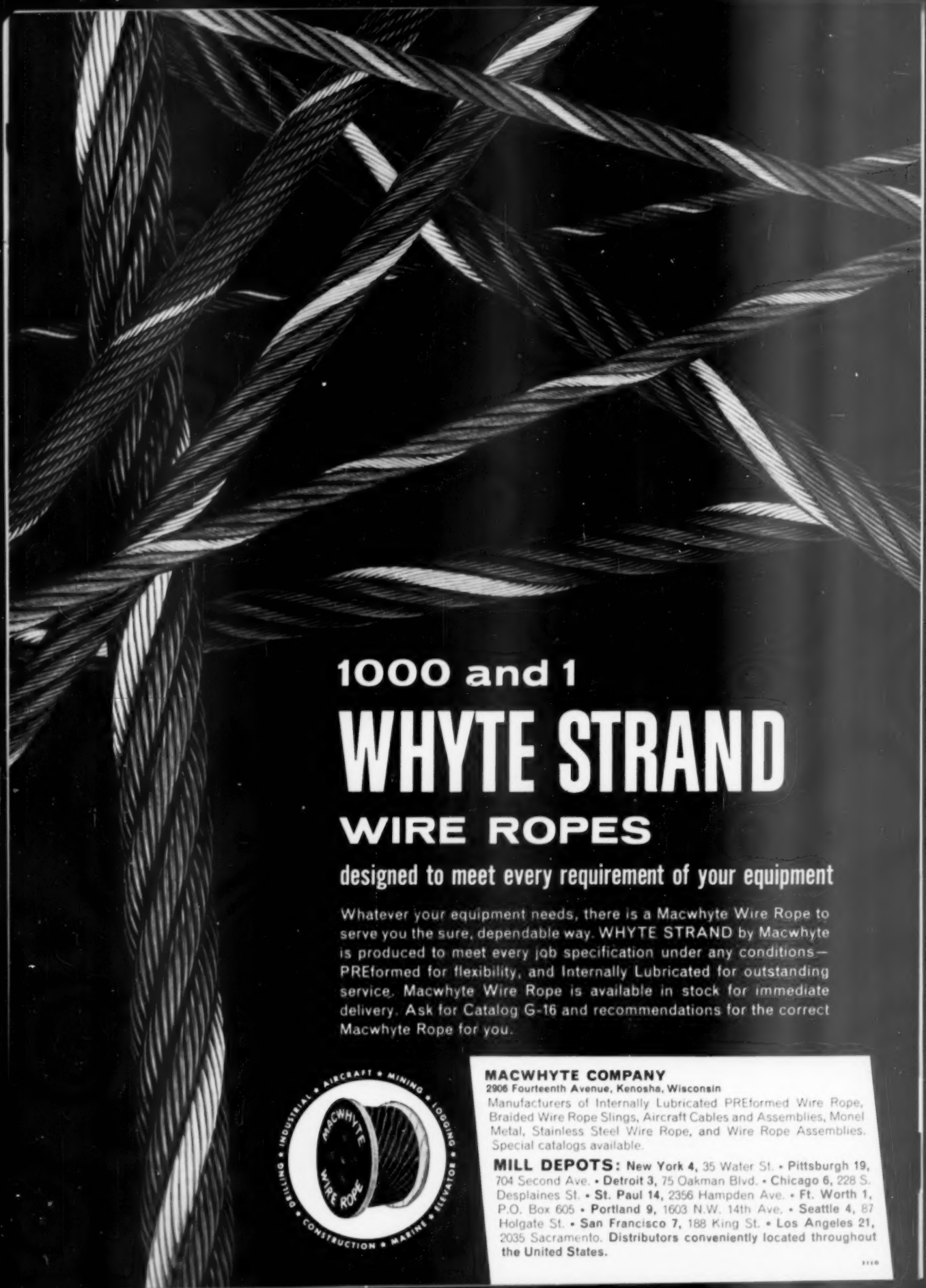
1307 NORTH BRANCH ST.
CHICAGO 22, ILLINOIS

SALES OFFICES IN PRINCIPAL CITIES

Combustion Engineering-Superheater Ltd., Montreal, Canada

Enter 1401 on Reader Card

Enter 1404 on Reader Card



1000 and 1

WHYTE STRAND

WIRE ROPES

designed to meet every requirement of your equipment

Whatever your equipment needs, there is a Macwhyte Wire Rope to serve you the sure, dependable way. WHYTE STRAND by Macwhyte is produced to meet every job specification under any conditions—PREformed for flexibility, and Internally Lubricated for outstanding service. Macwhyte Wire Rope is available in stock for immediate delivery. Ask for Catalog G-16 and recommendations for the correct Macwhyte Rope for you.

MACWHYTE COMPANY
2906 Fourteenth Avenue, Kenosha, Wisconsin

Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel Wire Rope, and Wire Rope Assemblies. Special catalogs available.

MILL DEPOTS: **New York 4,** 35 Water St. • **Pittsburgh 19,** 704 Second Ave. • **Detroit 3,** 75 Oakman Blvd. • **Chicago 6,** 228 S. Desplaines St. • **St. Paul 14,** 2356 Hampden Ave. • **Ft. Worth 1,** P.O. Box 605 • **Portland 9,** 1603 N.W. 14th Ave. • **Seattle 4,** 87 Holgate St. • **San Francisco 7,** 188 King St. • **Los Angeles 21,** 2035 Sacramento. **Distributors conveniently located throughout the United States.**

EDITOR'S PAGE

How Do You Build for the Future?

ROCK PRODUCTS PRODUCERS have worked hard for a decade to keep their industries in a solid economic condition to face ever-rising annual demands. You have done a good job, and now are ready to take on the challenge of even a brighter future.

But this progress didn't just happen; you made it happen.

For each successive year during the past 10—except for 1949—the need for increases in total volume of non-metallic minerals was satisfied. Producers saw to it. That volume now has passed the billion-ton mark. Gains were possible only through constant vigilance of operating management over markets and all the phases of production and distribution.

The past five years have been important ones, particularly. Then, the industry faced projected future demands that made 10-yr. old estimates look puny. What to do about it apparently was not questioned. Proper analysis of economic trends was backed up by supplying risk capital—lots of it—for expansion. It was enough to carry the load economically and to put industry in a strong position to face the future with confidence.

But you're in for another round; estimates for the future have changed since five years ago. The new Federal Highway Act passed in 1956 will cause demands for rock products to spiral upward for at least another decade. Former projections for rates of increase in population and Gross National Product have been hiked again. Non-highway construction rates, of course, are tied in with them.

So the long-range expansion problem is still one to be solved. As usual, you are planning to meet it. The more immediate problem is gauging the rate of expansion for the next few years. Some caution is evidenced among you here. You recognize the problem of uneconomic expansion that goes in too fast, and you're looking at it in light of the recent 5-yr. building program.

Here's what economists expect for this year. On a national economic basis, 1956 closed strongly—and experts say that strength will carry over into this year. Some plateaus in economic indicators are beginning to show. But they don't necessarily mean a recession because other indicators are up. The U. S. Chamber of Commerce says: "We can view 1957 with mild, caution optimism—disciplined optimism."

You have shown that you still are in tune with proper analysis of the projections. Your answers to a ROCK PRODUCTS questionnaire—included in a special section of this issue—show you are analyzing the problems of the future in the best interests of your industry.

We know you'll find the right answers.

George C. Lindsay

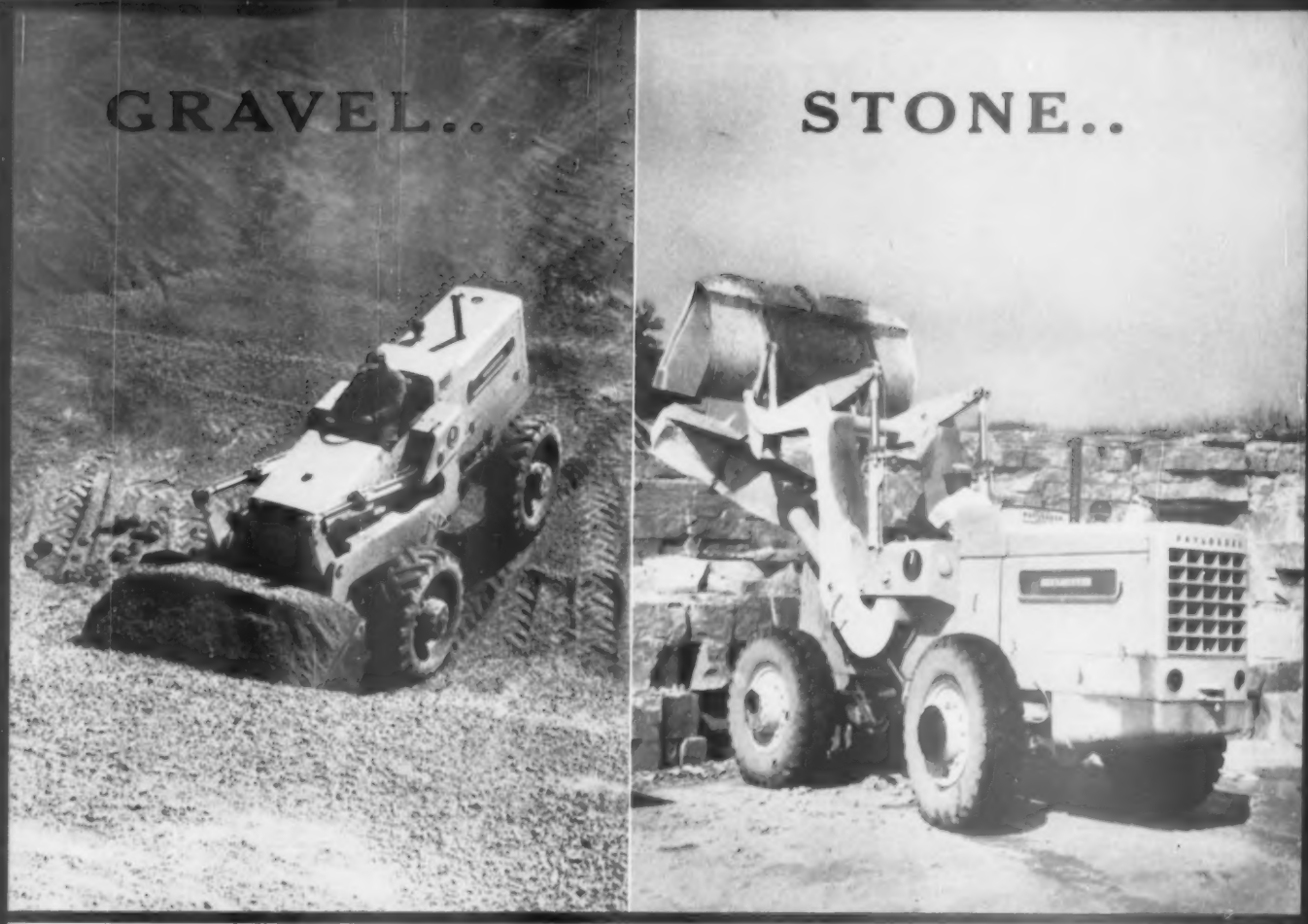
More Yardage with

No one knows better than you that a rubber tired tractor-shovel can do so many jobs, under so many kinds of job conditions, that the yardage handled can vary considerably. That's why yardage figures can be so misleading unless all the factors are taken into consideration . . . kind of material . . . whether in-place or rehandling . . . operator efficiency . . . length of haul . . . waiting time for trucks . . . one location or scattered jobs, and many other variables that affect daily output.

But of this you can be certain . . . on any given job the new "PAYLOADER" tractor-shovels will deliver more yards per day than any comparable size tractor-shovel . . . and will do so continuously shift after shift.

The knowledge and experience gained in building thousands of tractor-shovels over the past 35 years is your assurance that a "PAYLOADER" is superior in design, engineering and performance . . . that it will outperform and outproduce any other comparable unit on any job.

So don't be deceived by "box-car" yardage figures . . . take a close look at the "PAYLOADER" . . . on your job . . . and you be the judge. Your "PAYLOADER" distributor will be happy to arrange a demonstration at your convenience.



a PAYLOADER®

Full of "More-Yardage" Features

- Exclusive power-transfer differentials
- No-stop Power-shift transmission
- Planetary final drives
- Hydraulic system load shock absorber
- Powerful 40° bucket pry-out, breakout action at ground level
- Power steering and 4-wheel power brakes

Owners expect more from a "PAYLOADER" and they get more because more of them are in service than all other makes combined. They're designed right and built right . . . they're sold and serviced right by a nearby "PAYLOADER" Distributor.

PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO.
705 Sunnyside Ave., Libertyville, Ill.

Send data on 4-wheel-drive "PAYLOADER" tractor-shovels as checked

- ☐ HO (2¼ yd. payload, 1¾ yd. struck)
- ☐ HH (1¾ yd. payload, 1⅓ yd. struck)
- ☐ HU (1⅓ yd. payload, 1 yd. struck)

Name

Title

Company

Street

City

State

21

"Eucs" prove best investment . . .

for WYANDOTTE CHEMICALS CORP.

33,000 hours . . . still going strong!

At Alpena, Michigan, Wyandotte Chemicals Corp. has one of the world's largest limestone quarries—another job where "Eucs" are paying off in more loads per hour at less operating and maintenance cost.

Nine years ago Rear-Dump Euclids of 22-ton capacity replaced an electric haulage system for moving rock from the quarry face to the plant. These 14 "Eucs" are loaded by shovels with 5 and 6 yd. buckets. Average hourly production of each Euclid on the two-mile round trip is 75 tons on a 'round the clock schedule seven days per week. Company records show that they've worked an average of 33,000 hours each and more than 4 million ton-miles per unit.

Wyandotte standardized on Rear-Dump Euclids because of their job-proved dependability on hundreds of mine and quarry operations. Performance on the job and 9 years of experience prove this decision has paid off because "Euc" speed, efficiency and long life have increased production and lowered hauling costs for Wyandotte.

Your nearby Euclid dealer will be glad to discuss your off-the-highway hauling problems and show you why ***Euclids are your best investment.***

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

How Would You Decide?

A ROUNDUP of day-to-day in-plant problems and how they were handled by management men is given in cases cited below. Each incident is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to ROCK PRODUCTS.

Can you fire a man for trying to get another worker to slow down?

What Happened:

WHEN the foreman assigned a heavier work load to the men in his department, Jack Weaver got through it, though he had to hustle. In the locker room, after the shift, Dave Harman approached Weaver aggressively and said, "You bum! Waddaya tryin' to do—bust the rate? Slow down and take it easy!"

"You tend to your job and I'll tend to mine," said Weaver, walking off. Harman yelled after him. Weaver told the foreman, and Harman was bawled out. The next day, in the shop, Harman said to Weaver, "A stool pigeon as well as a bum! Why don't ya keep your big mouth shut?"

"Ah, scram," replied Weaver and again complained to the foreman. Next day, Harman was fired. He appealed and the case went to arbitration. The foreman claimed:

1. Harman caused a disturbance by calling Weaver foul names.

2. He tried to get Weaver to slow down during the trial period of a new schedule, which is dishonest.

Harman protested:

This is a first offense of using foul names, so discharge is too harsh.

2. Maybe he tried—but he didn't actually get Weaver to slow down, so no harm was done.

Was the foreman:

RIGHT ☐ WRONG ☐

What Arbitrator Douglas Maggs Ruled: "Harman's profane language, as a first offense, warranted nothing more than a warning. His attempt to induce Weaver to 'slow down' probably warranted a disciplinary layoff, but it did not warrant, even when coupled with the profane language Harman used, the ultimate penalty of discharge. The situation is distinguishable from one in which a worker has caused his fellows to work at an unreasonably low speed. Harman did not succeed in inducing Weaver to slow down.

"Harman did rebuke Weaver for having complained to supervision about what Harman had done. Whether viewed by itself, or in conjunction with Harman's other offenses, this misconduct did not warrant the ultimate penalty of discharge. Resentment of 'talebearing' is inculcated in children in our society. Nevertheless, employers may properly treat as an offense warranting some disciplinary penalty, action prompted by such resentment which interferes with production. But discharge is an unduly severe penalty for one guilty of a first offense of this kind. My conclusion is that the company did not have just cause for discharging Harman."

Must you pay a helper a higher rate for any skilled work he does?

What Happened:

Maintenance helper Merwin Rush was assigned to help Don Rahorn, a journeyman. Most of Merwin's work was preparation and cleanup. When he relaxed between these chores, Rahorn handed him some tools, saying, "You're not going to sit around doing nothing. Make yourself useful."

Under Rahorn's direction, Merwin worked at some of the journeyman's simpler chores. After a few months of this, Merwin asked to be paid the journeyman's rate for the work he'd done. The company said "No." Merwin appealed. Merwin argued:

1. It said in the contract that a worker temporarily assigned to another classification would be paid the rate for that classification.

2. He actually did some of the journeyman's chores.

Continued on page 24

As fast as trucks on 9-mile cross-town trip . . .

Michigan Tractor Shovels handle all loading at 3 scattered pits

Suppose that sometime soon you have the same problem that 15 months ago faced A. Courchesne, Inc., El Paso (Texas) commercial rock firm. Business has boomed so much you find it profitable to work several locations at once. (In Courchesne's case, he started producing railroad ballast a mile from his main pit, and began crushing colored roof stone at another site nine miles from the pit.) Slow-moving crawler-loaders, you know, aren't practical for working at more than one location. Purchase of more crawlers costs more than you want to spend. So what do you do?

Do what Courchesne did and your problem is solved!

Performance earns repeat order

Courchesne traded a crawler-loader for his first Michigan, a 1⅜ yard Model 125A, 15 months ago. Its performance was so good that when business continued to boom, he bought another Michigan, both from local distributor Contractors' Equipment & Supply Co.

Output averages over 1,500 yards daily

Today, the two Michigans load 1,500 to 2,000 cubic yards of stone every 8 hour day. The owners say each *equals a 1¼ yard power shovel* in output. Each works at three or four locations per shift, depending on customer re-

Michigan Tractor Shovel has ample power to load all the many kinds of stone produced at Courchesne's three pits . . . . . limestone flux for smelters . . . sand and concrete aggregates for building . . . slag ballast for railroads . . . gravel for water-well packing . . . crushed red, buff, green, and "glitter-white" stone (shown here) for built-up roof construction. The two Michigan Tractor Shovels combine to load 1,500 to 2,000 cubic yards per eight-hour day.

Three passes of Michigan's 1⅝ yard bucket heap the company's 5 yard dump truck. Despite rugged use, Owner Tom Courchesne reports both Michigans "amazingly trouble-free. And," he says, "these mobile units have let us gear our loading to the flexibility of our sales . . . something never before possible in the 69 years we've been in business."

quirements. And speed! According to General Superintendent Mike Barrueta, either Michigan can leave a pit together with the company's five-yard dump trucks, travel through city traffic on its own rubber, and be at the new loading site *at the same time as* the trucks. Power steering and smooth-acting four-wheel power brakes allow the Michigan Tractor Shovel to make full use of its 27 mph speed on concrete pavement, blacktop, cross-country trails, or on the pit floor.

Many other Michigan owners have similar speed and production advantages to report from their Tractor Shovels. The complete power-train—torque converter, non-stop power-shift transmission, shock-reducing planetary axles—was designed and built entirely by Clark, specifically engineered to give more useable speed, power and traction than you've ever seen on a rubber-tire tractor shovel. For proof, ask your Michigan distributor to demonstrate. You name the job . . . and the size Michigan you want to see, 1 yard, 1⅝ yard, 2¼ yard!

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 33, Michigan
Michigan is a registered trade-mark of

CLARK® EQUIPMENT

Continued from page 21

3. As long as he did journeyman's work, he temporarily was in the journeyman's classification and should be paid for it.

The company countered:

1. The maintenance helper classification was set up as a training ground for promotion.

2. The only way a helper could fit himself for promotion was by doing some of the chores of a higher job.

3. The description of the helper's job said in black and white—'Under close direction may perform assigned tasks."

Was the company:

RIGHT ☐ WRONG ☐

What Arbitrator Maurice Merrill Ruled: "The work was relatively simple and did not call for exercise of the higher skill of journeyman. Merwin Rush is not a journeyman and needed more experience if he was to gain proficiency.

"The company has a policy of promoting employes to higher ranks and encouraging them to qualify for promotion by acquiring skill in the line of succession. The work in which Merwin Rush was engaged would increase his skill in such lines. I come to the conclusion that the grievance must be denied."

Can you make a worker retire at 65 when the contract says nothing about retirement?

What Happened:

The company removed John Marnik from the payroll because he had reached the compulsory retirement age of 65. This had long been the company's policy, though there was nothing in the contract about retirement. Marnik objected, and this became the first formal grievance on the subject. It went to arbitration. Said Marnik:

1. The contract said nothing about retirement, so the company couldn't take him off the payroll except for layoff or for cause.

2. Some workers had been kept on after they got to 65.

3. The company didn't have the right to set a compulsory retirement age of its own.

The company argued:

1. It had long had a regular policy, known to everybody, of retiring workers at 65.

2. What exceptions it made were due to the labor shortage during World War II and the Korean War.

3. Since the contract didn't say anything about retirement, it had the right to set a compulsory retirement age.

Was the company:

RIGHT ☐ WRONG ☐

What Arbitrator Joseph Shister Ruled: "Where the contract is silent, the issue must be resolved by an appeal of that logic and equity which takes full account of the interests of both parties. Such an appeal leads to this response: the company does have the right to establish a compulsory retirement age for its employes provided that it can demonstrate that such a policy is not unreasonable.

"In the absence of a standardized compulsory retirement age, the company would have to judge each case separately. Not only would that impose an undue administrative burden on the company, but it would inject considerable subjectivity into the problem with the result that grievances, arbitration and conflict would be encouraged. The logic behind the company policy is reinforced by well-established precedent.

"Ever since the union obtained bargaining rights, and long before that as well, the company has pursued a policy of compulsory retirement at age 65. True, 10 workers were employed by the company beyond the age of 65. But all of these cases involved special circumstances which warranted the company action, and in no way contradicted the general policy of compulsory retirement at 65. Is 65 a reasonable age for retirement? Whatever the psychological, economic or sociological shortcomings of this figure, the irrefutable fact is that it is in widespread, almost universal, use as a benchmark for retirement in America. The grievance is denied."

Tractor Dozer's 33° bowl tilt helps speed ledge cleanup at Consolidated Copper's open pit near Ely, Nevada.

Before you buy <u>any</u> dozer...

Check Michigan Tractor Dozer's 27 mph speed, power-tilting bowl, full-time four-wheel traction

If you're in the market for any kind of dozer, be sure to check the new MICHIGAN Tractor Dozer before you buy. This job-proved unit dozes 2¼ cubic yards per pass. Its turbo-charged diesel engine develops 165 hp, with maximum rimpull of 28,000 lbs.—plenty for heavy-dozing, land-clearing, or push-loading. At 27 mph, it runs rings around any dozer on the market!

Full traction while turning. All four wheels of the Tractor Dozer are *always* driving, except when you declutch rear axle for highway travel. Rear-wheel steer eliminates unnecessary tire wear—you don't brake or drag inside wheels on turns. If one wheel begins to slip, a locking differential automatically applies power to wheel with firmest footing.

High flotation tires, oscillating axle. Big low pressure tires give the Tractor Dozer excellent ground contact in wet, dry, or sandy footing. You can cross railroad tracks or travel along ties or road bed; you can climb curbs and drive safely on any kind of road surface. On uneven terrain, the steering-wheel axle oscillates to keep both rear wheels in firm contact with the ground. With 14½ inches of ground clearance, it's practically impossible to get "hung up."

Power-shifting, 300% torque multiplication. Clark's power-shift transmission eliminates the conventional engine clutch and foot pedal—the most notorious cause of excessive maintenance and operator fatigue. With two fingertip levers on the steering column, operator can instantly shift between High-Low and Forward-Reverse—even when moving in either direction.

The 3-to-1 Clark torque converter gives a steady power flow, regardless of speed. As load gets heavier, torque output automatically increases up to 300% at stall speed—gives the extra torque to plow through the roughest spots. You can't stall the engine, and there's no clutch to slip.

Power-tilting bowl. Powerful double-acting hydraulic cylinder tilts bowl back and forth through 33 degree arc. You can change angle of bowl from "dig" to "float" as you work . . . move cutting edge back and forth to uproot stumps and boulders. Two 6-inch lift cylinders give tremendous lifting power and down-pressure—cutting edge raises from 24¼ inches below ground level to 43¾ inches above.

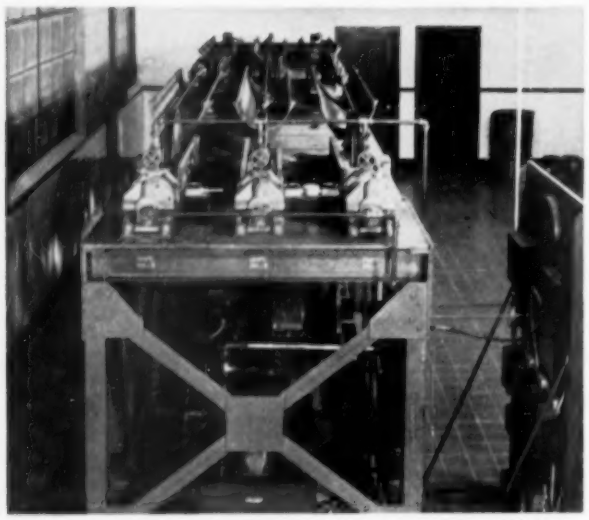
See Tractor Dozer in action—on your job. Write us to arrange a demonstration. You pick the work . . . then time cycles, measure output, compare price per yard of dozing capacity (don't forget MICHIGAN's f.o.b. price includes power-shift transmission, torque converter, planetary-wheel axles, and power-tilt blade . . . you don't have to pay for "extras" to get top efficiency). Or, if you'd like more details, before taking the time to watch a demonstration, ask us to show you a 20-minute color movie of the Tractor Dozer. No obligation, of course.

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 38, Michigan

Michigan is a registered trade mark of

CLARK® EQUIPMENT

Tuffy Wire Rope Tips



Until recently, a relatively meager amount of factual data has been available for estimating life expectancy of wire rope. Predicting how much service life could be expected from a given wire rope construction under a given set of operating conditions was largely a matter of guess-work, trial-and-error and generally inexact calculations.

Since bending stresses are a major factor in wire rope life, Union Wire Rope engineers designed the Accelerated Fatigue Tester, shown above, with which to pin down the effects of bending on wire rope. Now, from a long and exhaustive series of bending tests, scientific data has been accumulated and organized to take the place of former rule-of-thumb methods.

The data established by this laboratory research is based on the effect of various sheave diameters on bending stresses of various constructions of wire rope.

From test data, bending-life curves have been plotted by Union Wire Rope engineers for each of the more widely used rope constructions. Analysis made on each of these curves showed them to follow a pattern expressed by the curve shown in Fig. 1.

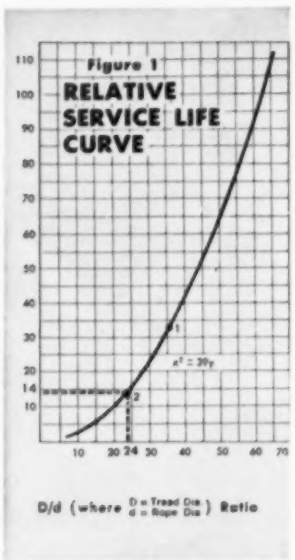


Table 2

BENDING-LIFE FACTORS

When Using Curve of 6x30 FW

CONSTRUCTION	FACTOR
6x7	0.57
18x7	0.67
6x17 Seale	0.73
6x19 Seale	0.80
6x21 Filler Wire	0.92
6x25 Filler Wire	1.00
6x31	1.00
8x19 Seale	1.14
6x37	1.33
8x19 Warrington	1.33
Filler Rope	2.00

Table 3

SHEAVE DIAMETER FACTORS

ROPE CONSTRUCTION	GENERAL PURPOSE RANGE D/d Ratios (Where D = Tread Dia, d = Rope Dia)	
6x7	63	42
18x7	54	36
6x17 Seale	49	33
6x19 Seale	45	30
6x21 Filler Wire	39	26
6x25 Filler Wire	36	24
6x31	33	22
8x19 Seale	31	21
6x37	27	18
8x19 Warrington	27	18
Filler Rope	18	12

Note on Fig. 1 the curve shows that as the ratio of tread diameter to rope diameter increases (see D/d figures at bottom of chart) the longer the relative service life as expressed by the figures at the left of the chart.

However, there are few pieces of equipment on which sheave and drum sizes can be large enough to afford D/d ratios above 50. From test data the general-purpose range of D/d ratios was determined. Those recommended are set up in Table 3.

Spotted on the curve, for example, is the D/d ratio of 24 at point 1 and D/d ratio of 36 at point 2—these being the range for general purposes taken from Table 3 for the 6x25 filler

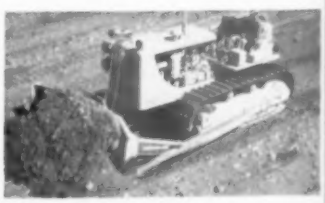
Tuffy Special Wire Ropes are tailored to special use. Ordering is easy:

Tuffy Scraper Rope

Moves more yardage per foot because **Tuffy** Scraper Rope is specially built to take the beating of extreme drum-crushing abuse. Flexible; withstands sharp bending; hugs sheave grooves and winds snugly and smoothly on drums. High resistance to load shock on slack line.

Tuffy Dragline Rope

Longer-wearing line for all dragline operations. Special abrasion resisting construction which also gives extra flexibility. Tuffy Draglines also spool better, ride better on grooves and hold tightly to drums when casting. Consistently dependable in handling any material – wet or dry dirt, sand, gravel, rock, cement or minerals.



How to predetermine wire rope life

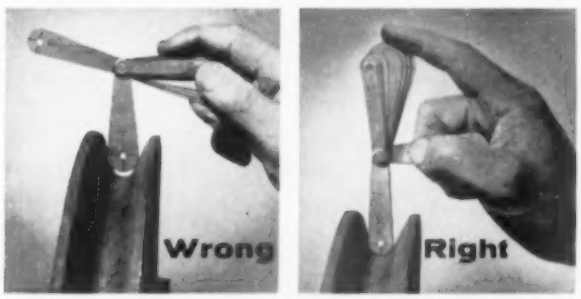
Here's the easier, surer way developed by Union Wire Rope Corporation Engineers

rope. Moving from these points to the left on the chart, the relative service life of this rope ranges from 14 to 34 units of any service measure used, such as yards, tons, days, etc.

Now to determine the relative service life of say a 6x37. Its bending life factor (see Table 2) is 1.33 as compared to 1.00 for the 6x25 filler wire. Multiply the service life readings of 14 and 25 for the 6x25 filler wire by 1.33, and we find the service life range of the 6x37 falls at 18 and 27 units of service. Relative service life of other ropes are determined in the same way by using the bending factor indicated for each as the multiplier.

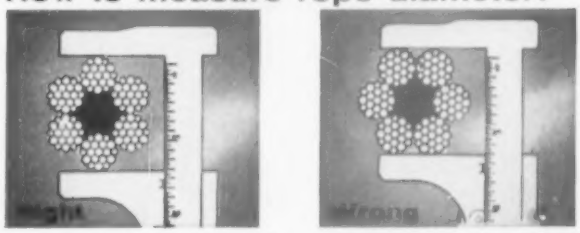
Of course bending is not the only wear factor in wire rope operation, and the general rule—that more flexible ropes should be used as bending stress increases with decrease in diameter of sheave or drum—has to be modified in field use. In fact there are eight other principal operating conditions, in addition to bending stresses, that affect wire rope service life. They are loading conditions, portability, corrosion, abrasion, rope speeds, materials handled, and equipment design.

What Size Rope?



Check groove diameter: When new wire rope is to be used on old equipment, make sure the tread or bearing surface of all sheaves is of sufficient groove diameter to avoid pinching the rope.

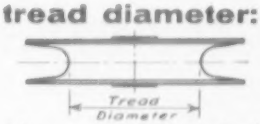
How to measure rope diameter:



Use a machinist's caliper. Be sure to measure the widest diameter.

How to measure tread diameter:

Select the smallest sheave or drum to be used with the new wire rope, and measure actual diameter of tread.



Sheaves with grooves corrugated with rope lay impression should be replaced with new ones before installing new wire rope.

New wire ropes are usually over-size. It is advisable to have groove diameters of sheaves or drums as large as the actual calipered diameter of the new rope, or slightly larger. We recommend sizes as follows:

Diameter of Rope	Groove Diameters	
	Minimum	Maximum
½" and smaller	diameter + 1/32"	diameter + 3/32"
9/16-1"	diameter + 1/16"	diameter + 1/8"
1-1/16-2"	diameter + 3/32"	diameter + 3/16"
Over 2"	diameter + 1/8"	diameter + 1/4"

Following the above instructions, you will know the Diameter of Wire Rope to use to fit your equipment.

Just say **Tuffy** give length and size, and forget complicated specifications.

Tuffy Slings and Hoist Lines

Here's a team that cuts hoisting and down-time costs in all types of materials handling.

Tuffy Slings are made of a patented, machine-braided fabric that stays extra flexible, and isn't materially damaged by knotting or kinking.

Tuffy Hoist Line is a special construction with the extra flexibility and toughness for longer service life on overhead, stiff leg and mobile cranes, derricks and clamshells.

Tuffy Dozer Rope

Long after ordinary ropes are worn out, **Tuffy** Dozer Rope has the stamina it takes to keep on handling the blade. 150' reels of 1/2" or 9/16" mounted on your dozers let you cut off worn sections without wasting good rope. This unbeatable combination piles up sizeable savings on dozer rope costs.

Your Tuffy Distributor is ready to help you with any wire rope problem.

If you aren't acquainted with him, look under "Wire Rope" or "Slings" in the classified pages of your telephone directory.

FREE! New "Rope Dope" Educational Bulletins

They're packed with boiled-down, useful information on the selection and care of wire rope for greatest service. Just ask your Tuffy Distributor to put your name on his mailing list.

union Wire Rope **corp.**

2156 Manchester Avenue, Kansas City 26, Mo.

Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand

Enter 1419 on Reader Card

How to lower the cost of asphalt paving

with Barber-Greene Continuous Plants . . . available in capacities from 20 to more than 200 tons per hour. Built for maximum portability, these plants produce all types of mixes at highest capacity, and for lowest operating cost. Once the proportions are set, operation is automatic; the human element is eliminated and manpower requirements are reduced to a minimum.

with Barber-Greene BatchOmatics . . . available in 2000, 4000 and 6000 pound sizes. Operating on inherently automatic principles, these plants save seconds at every point in the cycle. Instant changeover from automatic operation to manual production of mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation. New Dyna-Mix pugmill gives faster coating.

with the Barber-Greene Finisher. Having the widest choice of operating speeds, the Barber-Greene Finisher can lay every job at the maximum speed. It provides positive traction, superior maneuverability and unmatched ease of operation. Wide receiving-hopper simplifies truck discharge, eliminates spillage. No other machine paves as permanently, as speedily and as economically.

Write for literature on any plant in the cost-cutting line. Specify capacity. 56-25 AL

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Enter 1442 on Reader Card

PEOPLE

IN THE NEWS

R. S. Torgerson Resigns

RALPH S. TORGERSON has resigned as managing editor of ROCK PRODUCTS after serving the publication as associate and managing editor since 1938 with the exception of four years as manager of *Better Roads*. A graduate in electrical engineering from the Illinois Institute of Technology, Chicago, Ill., Torg started his career in the publishing business as assistant editor of *Railway Signaling and Communications*. Prior to joining ROCK PRODUCTS he was editor of *Mass Transportation*. He and his wife are moving to San Diego, Calif., where they expect to reside from now on. We are certainly going to miss Torg, and ROCK PRODUCTS' staff wish him and Mrs. Torgerson the best of luck and happiness.

Texcrete Appointments

R. L. MARSHALL has been named Dallas area sales representative for Texcrete Structural Products Co., an affiliate of Texas Industries, Inc. An engineering graduate of Southern Methodist University, Dallas, Mr. Marshall formerly headed his own construction and engineering firm in Dallas. William C. Green has been appointed chief of the engineering department. He was formerly with the Industrial Bureau of Standards, doing research on structural propertes of lightweight concrete aggregate.

A.I.M.E. Secretary Retires

EDWARD H. ROBIE has retired as secretary emeritus of the American Institute of Mining, Metallurgical and Petroleum Engineers. A member of A.I.M.E. since 1919, Mr. Robie became assistant secretary in 1932, secretary in 1949 and secretary emeritus in 1955. He is a graduate of the University of Michigan, Ann Arbor, Mich., with a degree in chemical engineering.

P. C. A. Chairman

GEORGE E. WARREN, president of Southwestern Portland Cement Co., Los Angeles, Calif., has been elected chairman of the board of directors of the Portland Cement Association, Chicago, Ill., succeeding Emory M. Ford,

George E. Warren (left), new chairman of P.C.A., and **Emory M. Ford**

chairman of the board of Huron Portland Cement Co., Detroit, Mich., who has served as chairman for the past two years. New directors of the Association are W. K. Farst, general manager, Pittsburgh Plate Glass Co., Columbia Cement Division, Zanesville, Ohio; John S. Lind, general manager, St. Mary's Cement Co., Ltd., Toronto, Ontario, Canada; Leonard E. Bayer, president, National Cement Co., Birmingham, Ala.; Robert E. Pflaumer, president, Standard Lime and Cement Co., Baltimore, Md.; Charles E. Shearer, president, Keystone Portland Cement Co., Philadelphia, Penn.; Ben W. Calvin, president, Aetna Portland Cement Co., Bay City, Mich.; C. F. Lewis, president and manager, Volunteer Portland Cement Co., Knoxville, Tenn.; and D. A. Symmes, president, Glens Falls Portland Cement Co., Glens Falls, N.Y.

Mr. Warren has been president of Southwestern Portland Cement Co. since 1949. He joined the firm in 1933 as vice-president and manager in charge of eastern operations. Prior to 1933 Mr. Warren was assistant general manager of the Portland Cement Association.

Assistant to President

ALFRED J. DICKINSON, vice-president in charge of purchasing, Virginia-Carolina Chemical Corp., Richmond, Va., has been named assistant to William H. Wilson, president of the firm. Douglas W. Laird has been named manager of the purchasing department, with Robert R. Martin as assistant manager.

Mr. Dickinson is a native of Eufaula, Ala., and a graduate of the University of Richmond and the Harvard School of Business Administration. He joined the company in 1939 as assistant to the comptroller and was named manager of the purchasing department in 1948.

Mr. Laird, a graduate of the University of Richmond, joined the company in 1948 after serving in the Air Force during World War II. He served again during the Korean conflict and returned to Virginia-Carolina Chemical Corp. in 1953 and was appointed assistant manager of the purchasing department in 1954.

Mr. Martin is a native of Richmond and a graduate of the University of Richmond. He joined the company in 1951 as assistant manager of the purchasing department.

Administrative Assistant

KENNETH J. SAMUELS has been appointed administrative assistant to Wallace A. March, vice-president and general manager of Permanente Cement Co., Oakland, Calif. Mr. Samuels has been with Permanente since 1948, serving as administrative assistant to the vice-president and controller. Prior to that he was assistant to the administrative manager at the Richmond shipyards of Henry J. Kaiser Co.

Association President

NOLAN BROWNE, president of Nolan Browne Co., Dallas, Texas, was recently elected president of the Texas Concrete Products Association. Harold M. Dodds of the Texarkana Concrete Products Co., Texarkana, was elected secretary-treasurer. William F. Smith, Black-Brollier, Inc., Houston, and F. L. Carmichael, Sr., Texcrete Co. of Fort Worth, were named to the board of directors.

Ideal Superintendent

WARREN E. BROWN, formerly assistant plant manager at the Baton Rouge, La., plant of Ideal Cement Co., Denver, Colo., has been appointed superintendent of the San Juan Bautista, Calif., plant.

(Continued on page 33)

NOW—*BULL'S-EYE KILN CONTROL*

at maximum capacity

Your recorder charts will resemble bull's-eye targets when your kiln is equipped with Bailey Automatic Kiln Control. A Bailey controlled kiln literally thinks for itself . . . Reacts quickly and correctly to any changes in operating conditions. Steady-state operation at maximum kiln capacity is achieved for days at a time with little or no supervision.

A Bailey Engineer will be glad to help you plan for *bull's-eye* kiln control. Write for a ROTARY KILN CONTROL FOLDER, complete with case histories and charts. C-9

Instruments and controls for power and process

BAILEY METER COMPANY

1039 IVANHOE ROAD • CLEVELAND 10, OHIO

In Canada—Bailey Meter Company Limited, Montreal

BAILEY METERS

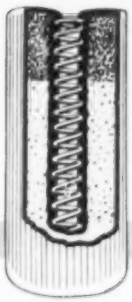
Enter 1457 on Reader Card

WINSLOW *Full-Flow* FILTERS

Case History Report No. 32 Shows Why Engines Protected by WINSLOW FILTERS Last Longer

A bank accident in the spring of 1955 dropped this D-7 bulldozer into 20 feet of water for 24 hours. After crankcase, radiator and other oil and grease containers were drained and flushed, and the tractor completely cleaned, it was put back to work and has operated *ever since* without overhaul, because it was protected by Winslow full-flow filtration.

Time Between Overhauls Doubled On Texas Firm's Diesel Engines



Since 1952 all powered equipment of Gifford-Hill & Company, Inc., with fifteen plants producing aggregates and concrete in Texas and Louisiana, has been protected with Winslow Full-Flow Filters. This includes dozens of diesel locomotives, tractors, ready-mix trucks and draglines, with several makes of engines.

Before installing Winslow Filters, the time between overhauls on heavy duty diesels rangd from 3,000 to 6,000 hours, depending on the type of engine and service. Now the time between overhauls is 6,000 to 12,000 hours, a tremendous saving in down time as well as overhaul costs, plus substantially longer operating life for the engines. Corresponding improvements are made on other types of equipment.

The CP* Principle

Winslow patented CP* (Controlled Pressure) elements are designed to continuously self-adjust the pressure within the filter and allow for a full stream of filtered oil without opening by-pass valves. This is accomplished through the dual flow capacity, with two types of material.

Fuel Filters, Too

All equipment at Gifford-Hill is further protected by Winslow Fuel Filters, which remove moisture, acid, dirt and other impurities from fuel oil, to protect working parts and improve performance on all types of engines.

For complete data on the application of Winslow Filters, please write or call

WINSLOW ENGINEERING & MANUFACTURING COMPANY

4069 Hollis Street, Oakland, California

CP is fully protected by patents and trademarks*

Enter 1447 on Reader Card

PEOPLE IN THE NEWS

(Continued from page 29)

Assistant to President

HARRY N. WALKER, formerly a vice-president of the American-Marietta Co., Chicago, Ill., and its subsidiary, Arco Co., Cleveland, Ohio, has been appointed assistant to L. F. Long, president of Building Products, Ltd., Montreal, Canada. John W. Church has been named eastern manufacturing manager and will be responsible for manufacturing operations of the company's four eastern plants. A graduate of Dalhousie University, Halifax, Nova Scotia, and holder of a degree in engineering administration from Massachusetts Institute of Technology, Cambridge, Mass., Mr. Church has been associated with the firm since 1937. He was previously manager of the plant at Ville LaSalle, Quebec.

Assists General Sales Manager

TOMMY C. DONOVAN has been named assistant general sales manager for Kaiser Gypsum Co., Oakland, Calif. Formerly assistant district sales manager for the southern California sales area, he succeeds Robert A. Costa who was recently named vice-president and assistant general manager in charge of the newly acquired insulating board division. Mr. Donovan attended the University of Arizona, Tucson, Ariz., is a graduate of Idaho State College, Pocatello, Idaho, and holds an M.A. degree in business administration from Harvard Graduate School.

A.I.M.E. President

DR. AUGUSTUS B. KINZEL has been elected president of the American Institute of Mining, Metallurgical and Petroleum Engineers, New York, N.Y., for one year beginning February, 1958. Vice-president of Union Carbide & Carbon Corp. in charge of research, Dr. Kinzel will succeed Carl E. Reistle, Jr., vice-president of Humble Oil & Refining Co., Houston, Texas, who has been named president of A.I.M.E. for 1957.

Heads Advertising Department

ROBERT L. FREEMAN, formerly technical service engineer, has been named head of the new advertising and promotion department of Huron Portland Cement Co., Detroit, Mich., according to an announcement by C. L. Laude, vice-president in charge of sales.

Richard S. Huhta

William M. Avery

ROCK PRODUCTS

Staff Changes

RICHARD S. HUHTA has joined ROCK PRODUCTS as managing editor. He succeeds Ralph S. Torgerson who is retiring from this position to move to California. Mr. Huhta has been an associate editor with *Popular Mechanics Press*, the book publishing division of *Popular Mechanics Magazine*. He has had experience in all phases of editorial work and magazine production and he will continue the high standard of layout and production to which ROCK PRODUCTS readers have become accustomed during Mr. Torgerson's 14 years with the magazine. A native of Northbrook, Ill., Mr. Huhta graduated from Bradley University, Peoria, Ill., with a B.S. degree in journalism.

The staff of ROCK PRODUCTS also greets WILLIAM M. AVERY, who joins us as an associate editor. With his strong background of writing, editing, and practical experience he will be a welcome addition to the editorial group. Mr. Avery comes to us with a decade of editorial work behind him. He has been field editor, managing editor, and editor of several magazines serving the rock products and concrete products industries. After graduating from high school in Chicago he was an honor graduate in civil engineering from the University of Illinois. He is a member of Tau Beta Pi and other honorary fraternities in the field of science and engineering. His extensive practical experience was acquired with several firms of architects and consulting engineers in Chicago and during a period of six years in the engineering departments of Armco Steel Corp., Middletown, Ohio, and Ashland, Ky.

ELWOOD MESCHTER has been named associate editor of ROCK PRODUCTS. He brings to the editorial staff a broad practical knowledge of the mining, processing and manufacturing operations in the rock products and allied industries. A professional engineer, he has written a number of articles on lime, gypsum, asbestos and other nonmetallic processing. For 15 years he was associated with Link Belt Co. in the engineering, sales and public relations departments. For a period of four years he was a district sales engineer in the Pittsburgh area, and for two years was editor of the Canadian edition of Link-Belt News. Mr. Meschter is a native of Kinderhook, N.Y. He graduated from New York State College for Teachers in Albany with a Bachelor of Arts degree. Since coming to Chicago in 1939 he has attended Illinois Institute of Technology, Northwestern University and University of Chicago, where he received a master's degree in business administration.

Elwood Meschter

Division Sales Manager

J. H. LAWLOR has been appointed manager of the metropolitan sales division of the Lone Star Cement Corp., New York, N.Y., succeeding P. G. Bigler, vice-president, who has retired.

(Continued on page 37)

An engine bearing—not big, but mighty important. If it's a CAT* bearing, it's an *exclusive combination* of aluminum alloy—extra strong with just the right degree of hardness. But if it's a "look-alike" bearing—who knows?

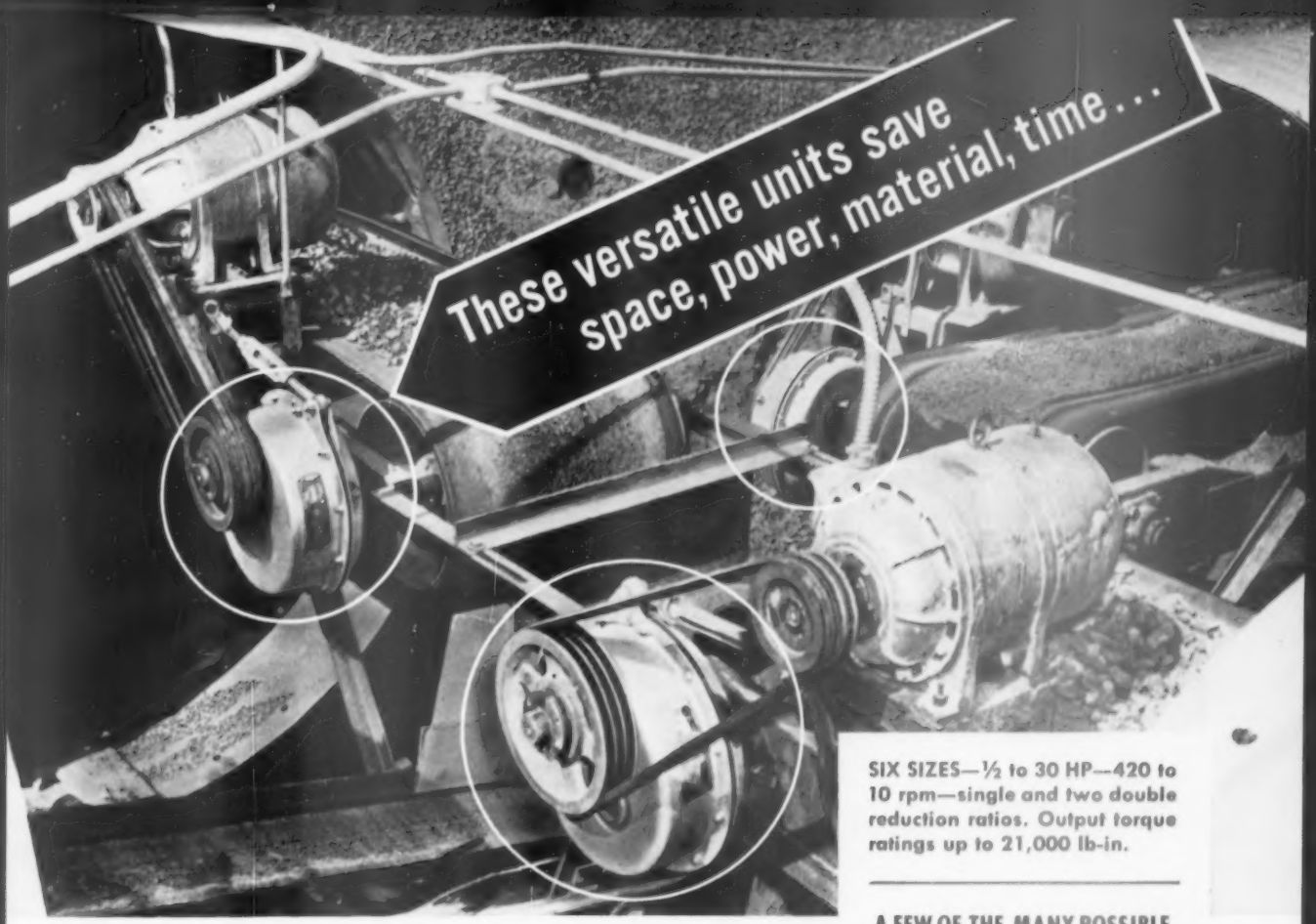
Be sure to get parts you can trust—from your Caterpillar Dealer. He always has the *exact* part you need. Play it safe—don't be fooled by "look-alikes."

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Enter 1443 on Reader Card



SIX SIZES—½ to 30 HP—420 to 10 rpm—single and two double reduction ratios. Output torque ratings up to 21,000 lb-in.

FALK ALL-STEEL Shaft Mounted Drives

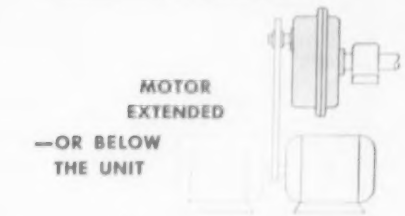
The photograph above typifies the way FALK Shaft Mounted Drives furnish the economical solution to problems of efficient speed reduction in a limited space. Within their rated capacities, these versatile reducers are designed to drive any machine and to fit any space requirement.

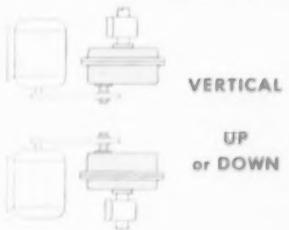
FALK Shaft Mounted Drives mount on the driven shafts and are connected by V-belt or chain to any convenient rotating power source. Unlimited choice of output speeds between 420 and 10 rpm is made possible by varying the ratio of driving sheaves or sprockets.

These units, with precision-cut gears of highest efficiency, use a minimum of power. They need no adjustable motor bases or slide rails; thus they save material. And, because they are readily available and easily installed or moved, they save time. Best of all, they are backed by FALK's unmatched experience in precision-gear manufacture.

Promptly available from factory and distributor stocks, from *coast to coast*. Ask your Falk Representative or Distributor for details—or write us for **Bulletin 7101.**

A FEW OF THE MANY POSSIBLE DRIVING ARRANGEMENTS





THE FALK CORPORATION, 3001 W. CANAL ST., MILWAUKEE 1, WIS.

Representatives and Distributors in Most Principal Cities

Manufacturers of

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

FALK

...a good name in industry

(Illustration from Agricola's De Re Metallica (1621)

All ore processing was difficult 400 years ago

There was a time when the grinding in an ore preparation plant consisted of a man with a hammer—like the one shown here, equipped with heavy leggings and gloves to protect himself against flying ore chips.

Today's ore processing plant is a far cry from this. It utilizes efficient grinding mills that turn out many tons of processed ore every day—mills which so often use CF&I Grinding Balls and Rods. CF&I Grinding Balls and Rods are always made from special analysis steel that has the ideal balance between toughness and hardness to assure optimum grinding ability and maximum wearability.

THE COLORADO FUEL AND IRON CORPORATION

Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso • Ft. Worth • Houston • Lincoln (Neb)
Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Antonio
San Francisco • Seattle • Spokane • Wichita

CF&I

Enter 1408 on Reader Card

PEOPLE IN THE NEWS

(Continued from page 33)

Appointed Superintendent

JERRY F. JANKOVIC has been appointed superintendent of the Buffalo, N.Y., plant of the Kelley Island division of Basic, Inc., Cleveland, Ohio, to succeed Albert W. Busch who has retired. Mr. Jankovic has been assistant superintendent for the past two years and prior to that served as plant engineer. A native of Cleveland, Ohio, Mr. Jankovic graduated from Purdue University, Lafayette, Ind., with a B.S. degree in mechanical engineering. Mr. Busch has been with the Kelley Island Co. for 36 years, starting as master mechanic at the Buffalo plant. In 1923 he was made general foreman in charge of production and maintenance, and in 1942 became plant superintendent at Buffalo.

Southwestern Promotions

RODNEY G. KAUFFMAN has been promoted to assistant eastern manager of Southwestern Portland Cement Co., Los Angeles, Calif. He was formerly sales manager of the eastern division and will be succeeded by Edward L. Higgins who has been serving as assistant sales manager. Edward C. McGinnis succeeds Mr. Higgins as assistant sales manager.

Rogers Named Vice-President

CARLTON M. ROGERS has been named vice-president of the Texas Portland Cement Co., Orange, Texas, according to an announcement by Kent B. Diehl, Sr., president of the firm. Mr. Rogers is president of the Union Gypsum and Wallboard Co., Phoenix, Ariz. He also is president of the Pacific Coast Rock and Gravel Co., Arcadia, Calif.

Certificate of Merit

W. J. WORTHY, executive vice-president of the Medusa Portland Cement Co., Cleveland, Ohio, was presented a Certificate of Merit for his accomplishments in the cement industry at the recent Industrial Recognition Week held in Sandusky, Ohio, by the Sandusky Chamber of Commerce.

C. of C. President

GALE PRYOR, co-owner of the Ready-Mix Concrete Co., Holdenville, Okla., has been elected president of the Holdenville Chamber of Commerce. He has been serving as vice-president and succeeds C. K. Barnes who has moved to Frederick, Okla.

Robert D. Dikkers

N.C.M.A. Engineer

ROBERT D. DIKKERS has been appointed an assistant engineer for the National Concrete Masonry Association, Chicago, Ill. He will handle assignments relating to structural problems in concrete masonry and conduct field investigations. Formerly a junior civil engineer with the Harza Engineering Co., Chicago, Mr. Dikkers received a B.S. degree from Northwestern University, Evanston, Ill., and an M.S. degree from the California Institute of Technology, Pasadena, Calif.

OBITUARIES

ROBERT W. LEA, retired president of Johns-Manville Corp., New York, N.Y., died suddenly at his home on November 13. He was 70 years of age. A native of Woodville, Wis., Mr. Lea was graduated from the School of Commerce of the University of Wisconsin, Madison, Wis. He joined Johns-Manville in 1939 as vice-president in charge of finance. He was named executive vice-president in January, 1946, and in September of that year was elected president. After his retirement in 1951, he joined Olin Industries, Inc., as a member of the executive committee and of the board of directors and as an adviser on corporate organization. He officially retired in January, 1956, but continued to serve as a consultant to the executive staff of the Olin Mathieson Chemical Corp.

GEORGE HYDE REDDING, president of Massey Concrete Products Co., Chicago, Ill., died November 23. He was 64 years old and a life trustee of Washington and Jefferson College, Washington, Penn., from which he received his bachelor's degree in 1913 and an LL.D. in 1948. Mr. Redding was also president of Canadian Concrete Products Co., chairman of the board of Mt. Vernon Co., and a past president of the American Concrete Pipe Association.

WILLARD A. STECKEL, secretary and son of one of the founders of the Steckel Sand Co., Phillipsburg, Penn., died October 10. He was 50 years old. The company was founded by his father, Charles C. Steckel, and his uncle, the late Walter Steckel, in 1904. They operated the firm until 1948. Walter Steckel died in 1953.

CHARLES TALLAKSON, assistant superintendent at the Detroit plant of Huron Portland Cement Co., Detroit, Mich., died recently at the age of 36. Mr. Tallakson was promoted to assistant superintendent at Detroit in June of this year. He was formerly at the Superior, Wis., plant.

DONALD JOEL DAVISON, treasurer of the Indiana Division of Lone Star Cement Corp., New York, N.Y., died suddenly at his home in Indianapolis, Ind., on October 22. He was 54 years old and had been associated with the company for more than 30 years.

JOHN F. KEEFNER, owner of the Keefner Sand and Gravel Co., Des Moines, Iowa, passed away recently at the age of 88. His son, Joseph Keefner, is president of the firm and manages the business.

HOWARD F. KICHLINE, director of research and research chemist at the Catskill, N.Y., plant of North American Cement Corp., New York, N.Y., died November 27 at the age of 65, after a month's illness.

G. F. EHRLINGER, secretary-treasurer of the Janesville Sand and Gravel Co., Janesville, Wis., died November 10, following a short illness. He was 72 years of age.

JOHN C. DENISON, eastern states representative of the Gibsonburg Lime Products Co., Gibsonburg, Ohio, died November 16 at the age of 77.

MAURICE A. KNIGHT, founder and president of The Rubber City Sand and Gravel Co., Akron, Ohio, passed away on November 10.

CHARLES SULLIVAN, sales supervisor for Fischer Lime and Cement Co., Memphis, Tenn., died October 23 at the age of 67.

LIMA

Announcing
TWO NEW LIMAS

TYPE 1250

3 CU. YD. HEAVY-DUTY SHOVEL

HIGH-CAPACITY DRAGLINE

85 TON CRANE AT 13′ RADIUS

Here are two powerful additions to the LIMA line of power shovels, cranes, draglines and pullshovels. The Types 1250 and the 1250-SC are the carefully engineered answers to the popular demand for a high capacity shovel and a crane that will hoist concrete and steel to the top of a 24-story building.

As a standard shovel, the 1250 is equipped with a 28-foot boom, 22-foot handle and three cubic yard dipper; as a high lift shovel, with a 45-foot boom, 32-foot handle and 2½ cubic yard dipper.

The 1250-SC is designed for sky-scraping duty, a rugged machine that swings a 200-foot boom and 50-foot jib with pin point precision.

These air operated rigs are in the big-time producer class yet their design permits knock down for haulage into units of less than 60,000 pounds. Side frames and counterweight segments are removable and the gantry can be folded to a height of 12-feet, 7¼ inches for job to job transportation.

Two truck bases are available—standard and widespread as well as two lengths of crawler assemblies (standard and long). The bases are one-piece carbon steel castings, bored and bushed for through axles.

The 1250 and 1250-SC are available with diesel or electric power and with or without torque converter drive.

TYPE 1250-SC

100 TON CAPACITY ON 60′ BOOM AT 13′ RADIUS

18 TON CAPACITY ON 200′ BOOM AT 50′ RADIUS

Get complete details on this profit-making machine from your nearby LIMA distributor, or write to Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

COMPARE LIMA QUALITY
. . . features and available equipment:

- Independent propel
- Load-lowering device
- Extra high-speed hoist attachment
- Third drum
- Power-reversing hoist drum
- Heavy-duty and special lightweight booms
- Telescopic boom stop with automatic shutoff
- Steering controlled by gear-type jaw clutches
- Electric lighting equipment
- Torque converter drive
- Anti-friction bearings at all important bearing points

QUALITY CONSTRUCTION

One-piece carbon steel rotating truck base . . . fabricated steel machinery frames . . . machine-cut gears . . . heat-treated steel ground shafting . . . large diameter clutches and brakes.

THE LIMA LINE INCLUDES:

SHOVELS	CRANES	DRAGLINES	PULLSHOVELS
to 6 cu. yds.	to 110 tons	variable	½ to 2½ cu. yds.

Smaller machines available on rubber

SEE THE NEW LIMA 1250 AT THE ROAD SHOW, BOOTH 506 ARENA IN CHICAGO, JAN. 28—FEB. 2.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA SHOVELS · CRANES DRAGLINES · PULLSHOVELS

BALDWIN BLH LIMA-HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation
Hamilton • Lowey Hydropress • Madsen • Pelton • Standard Steel Works

THESE '57 CHEVIES TURNED THE TOUGH ALCAN HIGHWAY INTO A TURNPIKE!

They took the "teeth" out of North America's toughest truck run in an amazing display of stamina and dependability! The Chevrolet Alcan test called for great truck components . . . and here they are, the same modern features you'll get in *your* '57 Chevy!

Modern high-compression 6's—a time-proved Chevrolet truck 6 made the tortuous Alcan Highway test look easy . . . registered a high 18.17 miles per gallon!

Short-stroke V8 power—with the shortest stroke of any truck V8's, new Chevy engines stand first in their field for efficient load-pulling! Their great performance in Alaska proved it!

Safe, sure brakes now Alcan proved—in medium-duty models, Hydrovac power brakes* supply up to 85% of the braking effort! Powerful Air-Hydraulic brakes* gave peak stopping power in heavy-duty models!

Unit-design cab and body construction—Chevrolet truck cabs and bodies remained tight and solid on Alcan bumps, showed that they're built to *last!*

Rugged Synchro-Mesh manual transmissions—they displayed never-say-die durability . . . came through with smooth, flexible, trouble-free performance!

*Revolutionary Powermatic transmission**—Drivers of heavy-duty models reported shift-free driving ease on Yukon grades, safer downhill hauling with the hydraulic retarder!

Sturdy frames and long-leaf springs—these brawny chassis components proved they can take it when the going is roughest . . . took the Alcan's worst with strength to spare!

These Alcan-proved Task-Force 57 features and others like them (such as extra-heavy rear axles, mighty Triple-Torque tandem options, and new, improved tubeless tires) are ready to tame your tough truck runs too! Boost your hauling profits by seeing your Chevrolet dealer soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**Optional at extra cost.*

1957 CHEVROLET TASK·FORCE TRUCKS

PROVED ON THE ALCAN HIGHWAY . . . CHAMPS OF EVERY WEIGHT CLASS! CHEVROLET

Enter 1407 on Reader Card

Enter 1406 on Reader Card

Photo Courtesy Iowa Mfg. Co.

Keep engine efficiency up, COSTS DOWN

GET MORE WORK from your engines and spend less for their upkeep. Use the lubricant that gives extra protection—*Texaco Ursa Oil Heavy Duty*.

Texaco Ursa Oil Heavy Duty is especially made to assure ideal engine lubrication and cleanliness. It is carefully refined and de-waxed, then fortified with effective additives that step up the ability of this great oil to—

1. **Inhibit oxidation**
2. **Assure full detergency and dispersion**
3. **Prevent rust**
4. **Protect bearings**
5. **Withstand high pressure and temperature**
6. **Minimize wear**

Texaco Ursa Oil Heavy Duty is one of the complete line of *Texaco Ursa Oils*—all designed to make diesel and heavy duty gasoline engines deliver *more power* with *less fuel* over *longer periods* between overhauls.

For your air compressors, use *Texaco Regal Oil R&O*. It keeps systems clean, lines clear—assures dependable performance.

For wire rope and open gears, use *Texaco Crater* or *Texaco Crater X Fluid*. You'll keep rope strong longer, get better performance from your gears.

A Texaco Lubrication Engineer will gladly help you simplify and improve your lubrication. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels
FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN . . . METROPOLITAN OPERA RADIO BROADCASTS EVERY SATURDAY AFTERNOON

Enter 1416 on Reader Card

INDUSTRY NEWS

Cover Picture

THIS MONTH'S COVER ILLUSTRATION shows the very complete cement distribution plant of Permanente Cement Co. located at Seattle, Wash. Permanente has a large investment in distribution plants as cement is moved by ship to Seattle, Portland, and Anchorage, Alaska as well as to Pacific island points. The Seattle distribution plant has storage capacity for 120,000 bbl. of cement. Facilities are available for sacking. Eight silos hold 10,000 bbl. each, and one holds 30,000 bbl. with star bins. Barges holding 18,000 bbl. are loaded in Seattle and hauled under contract for delivery to Anchorage.

Constructing Dock, Silos

ROCHESTER PORTLAND CEMENT Co., Rochester, N.Y., has formulated plans for construction of a 300-ft. dock in the Genesee River and four 90-ft. silos, each with a capacity of 25,000 bbl. The $1 million building program was announced by William H. Jagels, sales manager, who said that a channel from the proposed dock to the river channel will be dredged.

Expands Perlite Plant

ZONOLITE Co., Chicago, Ill., has announced the expansion of facilities at its Atlanta, Ga., plant for the manufacture of perlite. The new facilities will be installed promptly, according to vice-presidents J. A. Kelley (production) and R. W. Sterrett (sales), to serve Georgia and the surrounding states.

Describes Asbestos Site

LAKE ASBESTOS OF QUEBEC, LTD., Black Lake, Que., Can., subsidiary of American Smelting and Refining Co., is described in a brochure designed to acquaint asbestos users with the $32,000,000 operation. Drainage of the ½- x 2-mi. lake will be completed before open-pit mining of the ore bodies lying 70 to 200 ft. below the water is undertaken.

Work is proceeding also on the $9 million plant which will process 5000 tons of ore per day. Yearly output of asbestos fiber is expected to run from 95,000 to 100,000 tons. Proved reserves are sufficient to support the proposed output for at least 40 years. The mine and mill will be in production by mid-1958.

Starts Third Solite Plant

SOUTHERN LIGHTWEIGHT AGGREGATE CORP., Richmond, Va., through its president, J. W. Roberts, announced plans for immediate construction near Danville, Va., of a third plant for production of Solite, lightweight expanded aggregate. Production from this unit, when added to the plants in Buckingham County, Va., and Stanly County, N.C., will total more than 1,000,000-cu. yd. annually. Several mineral deposits to supply the plants have been purchased by the company over the last several years, but no statement was made as to which of the sites will be the next to be activated.

P.C.A. Awards Lab Contracts

PORTLAND CEMENT ASSOCIATION has awarded contracts to George A. Fuller Co., Chicago, for construction in Skokie, Ill., of a 56- x 176-ft. structural development laboratory and a 56- x 220-ft. fire research center with a two-story 24- x 132-ft. wing. The buildings, estimated to cost $2.75 million, are scheduled for completion late this year.

The building frames will be of conventional reinforced concrete, but beams are to utilize high-strength steel reinforcing bars. Precast concrete panels will be used for tilt-up wall construction, and roofs also will be of precast units.

Dr. A. Allan Bates, P.C.A. vice-president for research and development, described equipment to be used in the structural development laboratory. Conventional testing machines will not be used; rather, equipment will be constructed as required from large elements of structural steel or precast concrete with hydraulic jacks to apply the test loads. The fire research center will contain several furnaces large enough to accommodate full-scale beams, columns, walls and floor slabs. The original laboratory buildings to which these facilities are being added are the main laboratories structure, an auxiliary building, pavement testing laboratory and storage building.

Acquires Mineral Wool Plant

BALDWIN-HILL CO., Trenton, N.J., has acquired the Wabash, Ind., plant of Eagle-Picher Co., as revealed in an announcement by W. H. Hill, president of Baldwin-Hill. Plans are to continue using the Wabash plant to make basic mineral wool products.

(Continued on page 42)

Artist's sketches on aerial view show the proposed structural development laboratory, left, and fire research center, to the right of present laboratory facilities

Sand, Gravel Safety Winners

BUREAU OF MINES, U. S. Department of the Interior, presented certificates of accomplishment to the top winners of each two divisions, bank or pit group, and dredge group, from 161 operations competing in the 1955 Sand and Gravel safety competition. The Lockport, Ill., plant of Material Service Corporation, operating 171,617 man-hours without a lost-time or disabling injury, took top honors in the bank or pit group.

The Flint Sand and Gravel operation, Jahncke Service, Inc., Bluff Creek, La., won highest honors in the dredge group for its record of 116,413 injury-free man-hours. Fifty-seven other operations taking part in the contest were presented certificates of achievement in safety for working throughout the year without a lost-time or disabling injury.

Announce Affiliation

DANIELS SAND CO. AND TRANSIT MIX CONCRETE CO., Colorado Springs, Colo., owned by Gerald P. Wagner, Oliver Lecompte and Raymond L. Daniels, have become affiliated with Continental Uranium, Inc. The Coloradans will continue in management of the two companies. Gerald Gidwitz, chairman of Continental, said the affiliation will enable the companies to expand their activities with the financial resources of Continental. "It is also in line with Continental's policy of diversification into the areas of building materials and non-metallic mining," he said.

Organize Fly Ash Firm

WISCONSIN FLY ASH CORP., Madison, Wis., a newly formed subsidiary of Chicago Fly Ash Co., has been organized with an authorized capital stock of 2500 shares of common at par value of $10 per share. The company has contracted to buy half the 100-t.p.d. output of fly ash of the Wisconsin Public Service Corp.'s Green Bay, Wis., steam plant. The fly ash is available in bulk by the ton or in bags for sale to cement companies.

Increases Cement Prices

MARQUETTE CEMENT MANUFACTURING CO., Chicago, Ill., announced a price increase of 15¢ per bbl., effective January 1, 1957, on all types of portland cement shipped from its plants at Des Moines, Iowa, Memphis, Tenn., Cape Girardeau, Mo., and Superior, Ohio. No decision has been reached as to possible changes in the

(Continued on page 48)

Caterpillar announces

NEW HEAVY-DUTY RIPPERS

No. 4 No. 6 No. 8 No. 9 for CAT* Diesel Tractors and Traxcavators*

- **Ruggedly constructed to rip in extremely tough conditions—hardpan, shale, asphalt, frozen ground and other stubborn materials!**
- **Utilizes weight of tractor for positive ripping action at any depth of tooth penetration.**
- **Close mounted for excellent maneuverability in cramped quarters!**

No. 6 Ripper with No. 977 Traxcavator Three teeth standard with provision for two extra. Parallel linkage for same cutting action on all teeth at any depth. Cutting width—82½"; ground penetration—down to 16"; length behind tracks (raised)—29½". Also for use with D6.

No. 9 Ripper with D9 Tractor Three teeth standard. Ripping action is versatile—use one, two or three teeth. Any or all of them can be swung up and pinned out of the way. Teeth pivot 10° to either side. Cutting width—106"; ground penetration—down to 28".

No. 8 Ripper for use with D8 Tractor. Two teeth standard—designed to handle a third tooth. Individual tooth control as on No. 9. Cutting width—92"; ground penetration—down to 26".

No. 4 Ripper for use with D4 Tractor and No. 955 Traxcavator. Three teeth standard with provision for two extra. Parallel linkage. Cutting width—71"; ground penetration—down to 12".

Here's a tough new line of rippers developed by Caterpillar to increase the versatility of rugged yellow Cat Diesel Tractors and Traxcavators. They come equipped with alloy steel teeth with replaceable tips. Their special design and sturdy construction enable you to handle jobs that were previously considered impractical because of difficult digging conditions.

They're one more example of Caterpillar's "leadership in action" policy to produce equipment that helps you do more work at lower cost. For complete information about them, see your Caterpillar Dealer!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

NEW HEAVY-DUTY RIPPERS FOR INCREASED PRODUCTION

LOOK TO DAYBROOK

. . . For a New Standard of Performance on "Rock Routine"!

Illustrated—Daybrook Series 1050 Rock Bodies—Boulder Dam Type

Daybrook Rock Bodies and Hoists, long known for rugged dependability, now set a *new standard* of performance in quarry operations.

Improved Construction . . . Better Materials . . . Superior Workmanship—assure longer, profitable life on the "Rock Routine."

Daybrook builds a *complete* line of Rock Bodies and Hoists for *all* quarry and mine applications. In addition, Daybrook is the first to offer sealed hydraulic cylinder design—backed by a *one-year warranty*.

DAYBROOK
Speedlift®
TRUCK EQUIPMENT

SEND DAYBROOK LITERATURE CHECKED BELOW:

ROCK BODIES—HOISTS ☐

POWER LOADER ☐

EXCAVATOR BODIES—HOISTS ☐

POWER GATE ☐

Sign below, attach coupon to letterhead, and mail in envelope.

Name

DAYBROOK HYDRAULIC DIVISION
L. A. YOUNG SPRING & WIRE CORPORATION
BOWLING GREEN, OHIO

LAYCO

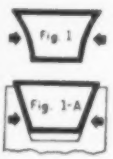
Enter 1484 on Reader Card

Get more HP delivered per $ of drive cost

No other V-Belt has ALL these advantages

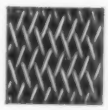
1. Tough, resilient Tensile Cords

Super-strength tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required . . . save weight and space.



2. Concave Sidewalls (U.S. Pat. 1813698)

Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . . far longer belt life.



3. Flex-Weave Cover (U.S. Pat. 2519590)

A Gates exclusive provides greater flexibility with far less stress on fabric. Cover wears longer . . . increases belt life . . . more power available to driven machine.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure.

Cut sheave width and weight with Gates Super Vulco Ropes

You save on cost of iron . . . you reduce bearing width and support . . . you save space and overall cost . . . when you design a drive using Gates Super Vulco Ropes. Here's why:

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

That's because Gates Super V-Belt has 40% more horsepower capacity than standard belts. Therefore, you can reduce sheave width and weight . . . cut cost.

A wealth of drive data is quickly available to you. Simply call your nearby Gates V-Belt Distributor (see 'phone book yellow pages) for a Gates V-Belt specialist. Stocks available in industrial centers around the world. The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts.*

The Mark of Gates Specialized Research

TPA 91

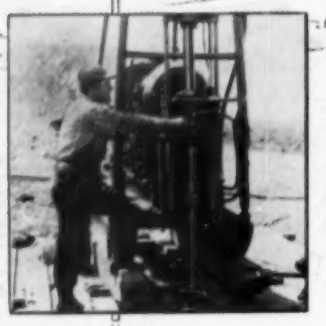
Gates Super VULCO ROPE Drives

Enter 1422 on Reader Card

CONTACT

SPRAGUE & HENWOOD, Inc.

FOR ALL OF YOUR DIAMOND DRILLING NEEDS



CONTRACT DIAMOND DRILLING ANYWHERE

Many, many firms throughout the United States and the world know the advantages of core drilling; and Sprague & Henwood, with more than 70 years of experience, is the leader in this field. Sprague & Henwood crews have completed thousands of contracts successfully in every conceivable condition. For the best in exploratory core drilling (surface or underground), blast hole drilling, directional drilling, foundation test drilling, grout hole drilling, and pressure grouting—be sure to call Sprague & Henwood. Estimates and suggestions given without charge.

"ORIENTED" DIAMOND CORING BIT

IMPREGNATED CORING BIT

"ORIENTED" DIAMOND "TAPER" TYPE NON-CORING BIT

DOUBLE-TUBE REAMING SHELL

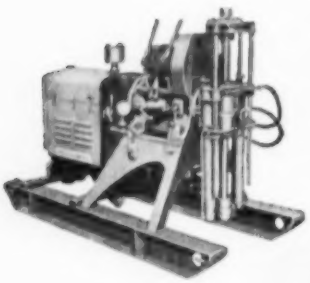
"ORIENTED" DIAMOND BITS

Any bit you buy will work for a while. But if you specify or order Sprague & Henwood "Oriented" Diamond Bits, giving all information on your drilling conditions, you will receive the bit or bits that will do the best job for you. Lower your cost per foot, with a minimum of diamond loss. Write today for complete "Oriented" Diamond Bit Bulletin #320-1.

RESETTING SERVICE

Send in your bits that need resetting, giving full details of results obtained and conditions under which bits were used. They will be returned new—and "Oriented" to give you less diamond loss and lower your cost per foot.

FIELD TESTED DRILLING MACHINES

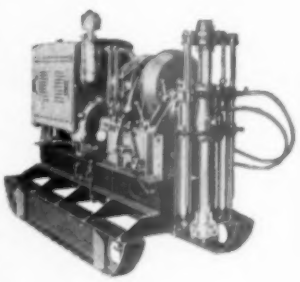


MODEL 40-C CORE DRILL MACHINE

Field Tested means just that . . . with contract work being done under every conceivable condition, Sprague & Henwood drilling machines have to perform right. Different sizes and types to meet various conditions are available. Your conditions should be given in detail, and recommendations will be forwarded to you immediately, without cost.

ACCESSORY EQUIPMENT

In addition to drilling machines, and diamond bits, Sprague & Henwood manufactures and can supply you with a complete line of accessory equipment necessary to make up a drilling outfit, such as drill rods, core barrels, casings, fishing tools, etc. A new and most complete Catalog, No. 400, listing all accessory equipment is available to you. Write today for your free copy. It will be mailed promptly.



MODEL 142 CORE DRILL MACHINE

SPRAGUE & HENWOOD, Inc.

SCRANTON 2, PA.

S & H SINCE 1863

Atlanta • New York • Philadelphia • Pittsburgh • Buchans, Newfoundland • Grand Junction, Colorado

Enter 1452 on Reader Card

Enter 1453 on Reader Card

HIGH-PRODUCTION ROCK HAULER

CAT* DW21-PR21 units climb stiff grades, make 600-yard round trips in 6½ minutes cycle time

This is one of two DW21 Tractors with Athey PR21 Rear Dump Trailers used by Newport Excavating Co. to haul from an open pit at Nanticoke, Pa. Shovel loaded, each unit handles an average load of 25 cubic yards of rock, pulls it up a 7½% grade out of the pit, and makes the 600-yard round-trip in 6½ minutes.

These big, tough haulers work steadily, 24 hours a day, five days a week. Their short turning radius and great maneuverability make them fast workers around the shovel and on the dump.

Perfectly matched to the rugged PR21, the new Caterpillar DW21 (Series C) develops high usable rimpull; its heavy-duty Turbocharged Cat Engine delivers 300 HP (maximum output). What's more, because of its four-cycle design, the engine gives you *dependable* power with a minimum of maintenance. No fuel adjustments are required. There are no cylinder ports or air boxes to clean. And low-cost No. 2 furnace oil can be used without fouling.

Among other features that boost production are: automotive-feel, hydraulic steering for easy, fast maneuvering and wide-section 29.5 x 29 tubeless tires for maximum flotation and sure-footed traction. Tubeless tires, pioneered in earthmoving use by Caterpillar, save tire down time and bring real cost savings over old-fashioned tubes and flaps.

For high, steady production you can't beat the DW21-PR21 in rock work. Your Caterpillar Dealer, who backs you with prompt service and parts you can trust, will glady give you complete details of its performance. Call him today!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

HEAVY-DUTY EQUIPMENT FOR THE HARD WORK

INDUSTRY NEWS

(Continued from page 42)

prices from other plants in the Marquette group, according to S. L. Cribari, vice-president in charge of sales.

Canadian Co.'s Lime Output Up

GYPSUM, LIME AND ALABASTINE CANADA, LTD., Toronto, Ont. Can., is going ahead with construction of a $1 million rotary lime kiln at its Beachville, Ont., plant, building it alongside another kiln brought into production in the fall of 1956. According to G.L.A. president, P. N. Gross, the Canadian lime market is growing rapidly. The company's 19 plants are attempting to keep pace with the demand.

Major purpose in building the second kiln is to provide lime needed at the Rio Tinto uranium mines in the Blind River area. By the end of 1957, the uranium market is expected to account for more than 200,000 tons of lime annually.

Fiberglas Firm Expands

FIBERGLAS CANADA, LTD., with plants at Guelph and Sarnia, Ont., Can., is checking sites in Alberta for possible erection of a plant, according to a statement by President T. J. Bell. A general expansion program already begun by the company includes an extension to the Guelph plant and a $100,000 addition to the Sarnia plant. The latter provides for 13,000 sq. ft. of manufacturing space and a new press. Production is expected to be increased by 50 percent.

Starts Stripping Operation

THE ALBERENE STONE CORP., Schuyler, Va., has begun strip mining operations near its original quarry at Alberene, Va., which was founded in the 1880's. The company, which has since moved its headquarters to Schuyler, has four quarries operating near its plant at Schuyler, and owns more than 8000 acres in Nelson and Albemarle counties.

Organize Sand, Gravel Firm

FRAK-SAND CORP., Custer, S.D., has been incorporated at Pierre, S.D., to supply sand, gravel and other commercial minerals. Capitalized at $1 million, the firm's directors include Monte Heumphreus and Roy Bristol of Custer and Stephen E. Sekulich, Leslie Wade and George L. Culver, all of Newcastle, Wyo.

(Continued on page 52)

simple shifting

means

1 proper use of all available gear ratios

2 easier handling rigs; better maneuverability

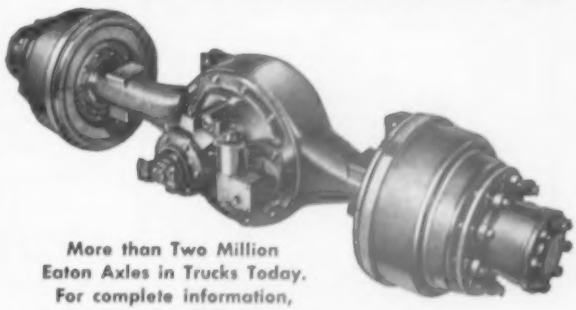
3 reduced driver fatigue; safer operation

EATON

2-Speed Truck

AXLES

Eaton 2-Speed Axles not only let drivers select from TWICE the conventional number of gear ratios, but they make these ratios available at finger touch. Result: drivers use the right gear ratio for every road and load condition; engines operate in their most economical speed range; stress and wear are reduced on all power-transmitting parts. Trucks cost less to operate and maintain; last thousands of miles longer; and bring higher allowances at trade-in time.

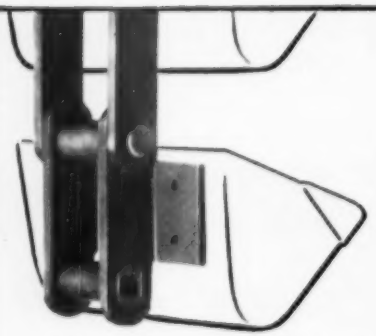


More than Two Million Eaton Axles in Trucks Today. For complete information, see your truck dealer.

EATON — *AXLE DIVISION* — MANUFACTURING COMPANY
CLEVELAND, OHIO

PRODUCTS: Engine Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Hydraulic Pumps Motor Truck Axles • Permanent Mold Gray Iron Castings • Forgings • Heater-Defroster Units • Automotive Air Conditioning Fastening Devices • Cold Drawn Steel • Stampings • Gears • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

Enter 1445 on Reader Card



For longest service in severe conditions, Rex Chabelco® Steel Chains outlast all other chain. A complete line of cast chain and sprockets also available.

You'll cut down time even more by using Rex Segmental Sprockets. These sprockets can be installed without removing shaft or bearings. Rim sections bolt on to the body while the chain is suspended.

Tough Rex Elevator Buckets give longer service at lower cost!

You'll eliminate frequent replacements and cut down time to an absolute minimum with buckets designed especially for rugged service—Rex Elevator Buckets!

Rex Buckets deliver longer service because they're harder and reinforced at all wear points. Front edge and corners are double-thick, and backs extra-heavy to prevent bolt "tear-out."

Rex Buckets are well rounded to assure complete, fast loading and discharge. These buckets are made to highest standards...cast from patterns held to exact tolerances. Every bucket is accurate in all dimensions, size and volume.

Your choice of two quality metals available—tough Rex Malleable iron for average service, or wear-defying Rex Z-Metal for highly abrasive or corrosive service. For the complete story, write CHAIN Belt Company, 4649 W. Greenfield Ave., Milwaukee 1, Wisconsin.

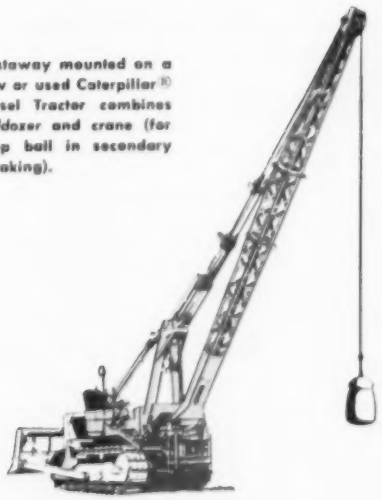
CHAIN BELT COMPANY

District Sales Offices in principal cities

Enter 1438 on Reader Card

NOW THIS IDEA REALLY PAYS OFF for quarry operators

Use ONE HYSTAWAY® to do the work of 2 machines ... and reduce operating costs!



Hystaway mounted on a new or used Caterpillar® Diesel Tractor combines bulldozer and crane (for drop ball in secondary breaking).

WITH THE HYSTAWAY CRANE ONE man and ONE machine can handle all secondary breaking and clean-up work. Many quarry operators have found the Hystaway idea pays off in **reduced operating costs**—because bulldozer and drop-ball operations can be performed by the **same machine.**

MAINTENANCE WORK is also economically performed by this fast-moving bulldozer-crane combination. Lifting screens and motors for crusher repairs and building and maintaining haul roads are but a few of the many **bonus** jobs for the Hystaway.

INVESTIGATE the possibilities of the Hystaway in your operation **now.**

FOR DETAILS, CALL YOUR CATERPILLAR TRACTOR CO. DEALER
• He is also your HYSTER Dealer •

*Caterpillar is the registered trademark of the Caterpillar Tractor Co.

HYSTER COMPANY

2918 N. E. Clackamas Street, Portland 8, Oregon,
1818 N. Adams Street, Peoria 1, Illinois.
Portland, Oregon; Peoria, Illinois; Nijmegen, The Netherlands

Enter 1414 on Reader Card

INDUSTRY NEWS

(Continued from page 48)

Adopts Split Channel Plan

FEDERAL COMMUNICATIONS COMMISSION has adopted new technical standards applicable to radio equipment operating on frequencies within the 152-162 megacycle range, providing for a separation between channels of 30 kilocycles rather than the 60 kilocycles now required. National Sand and Gravel Association has informed members that equipment must conform to the revised rules by November 1, 1963. It also has requested the Commission that new frequencies made available by the decision be allocated to the Special Industrial Radio Service.

Record Slag Production

U. S. BUREAU OF MINES has released statistics showing that slag production in 1955 reached an all-time high of 32,438,017 short tons, valued at $46,307,898. The 1954 output of 29,235,142 short tons was valued at $39,476,408. Included in the canvass conducted by National Slag Association in co-operation with the Bureau of Mines, were production figures of 45 companies operating 68 plants processing air-cooled slag, 15 plants processing granulated slag and 20 plants producing expanded slag.

Asbestos Plant Opens

STAR ASBESTOS CO., Eastern Transvaal, South Africa, has opened, with a present capacity of 3600 t.p.y. A fully-automatic milling process and automatic grading system produces a high grade Chrysotile fiber said to have good tensile strength and a dry character. The plant is in the Kaapsche Hoop area in the vicinity of New Amianthus and Munnik Myburgh Mine.

Perlite Sales Set Record

PERLITE INSTITUTE has estimated sales of perlite to have set a new industry record in 1956 of approximately $13,700,000, up 9.8 percent from 1955. Output of the expanded volcanic lava, produced by 84 plants in 30 states, is also estimated to have risen by the same amount to 270,000 short tons. Richard S. Funk, administrative secretary of Perlite Institute, predicts an additional 12 percent increase in expanded perlite sales for 1957, estimating an industry volume of approximately $15,350,000. Tonnage is also expected to rise 12 percent to over 300,000 short tons.

Existing mining and processing facilities are believed to be adequate to supply the demand. Foreign countries are showing increasing interest in exploiting their perlite resources, evidenced by Perlite Institute's member companies in Canada, Mexico, Venezuela, Great Britian, Greece, Australia and New Zealand.

Highway Highlights

● CALIFORNIA STATE HIGHWAY COMMISSION adopted a record-breaking 1957-58 budget totaling $464,247,288, an increase of more than $115 million over last year. State highways are to receive $421,062,057, with the remainder going to county roads and major city streets.

● OMAHA, NEB., MAYOR JOHN ROSENBLATT announced that the next step in the proposed $83 million expressway program for the Omaha area would be reviews by local governmental and planning groups. The program calls for 26 miles of controlled access expressways.

● OPENING OF THE 124-MILE Massachusetts Turnpike to toll-paying traffic is tentatively scheduled for May 1, 1957, according to announcement by William F. Callahan, chairman, Massachusetts Turnpike Authority.

● TENTATIVE PLANS announced by Iowa Highway Commission indicate its letting of road-building contracts in 1957 may reach a total of $115 million.

Census Compiled

BUREAU OF THE CENSUS, U. S. Department of Commerce, has compiled a report, Series MC-32-4, on the 1954 Census of Manufacturers covering the concrete, gypsum, mineral wool, stone products and lime industries. Comparative figures for the last previous census covering 1947 are included when available.

A total of 90 gypsum plants employed 10,966 people, with annual payroll of $48,639,000; 56 of the plants had 20 or more employes. Production employes numbered 9278, worked 21,927,000 man-hours, and were paid $39,715,000. Spending $120,278,000 for materials, etc., and adding $161,898,000 by manufacture, the plants valued shipments at $282,177,000. Capital expenditures were $10,227,000.

The lime industry, with 145 plants reporting (81 with 20 or more employes), listed total employes as 7989

(Continued on page 54)

and annual payroll as $30,645,000. Production workers, numbering 6835, worked 14,456,000 man-hours and were paid $24,454,000. The plants paid $51,842,000 for materials, added $57,383,000 by manufacture and valued shipments at $109,226,000. Capital expenditures were $4,835,000.

The mineral wool industry, 85 plants reporting (56 having 20 or more employes), employed a total of 10,244, with a payroll of $44,049,000. Production workers, numbering 7555, were paid $31,191,000 for 15,931,000 man-hours. Cost of materials was $67,019,000, value added by manufacture was $89,887,000, and value of shipments, $156,907,000. Capital expenditures of $6,068,000 were reported.

Statistics given for the industries as a whole are broken down into regions and states. Quantity and value of products shipped are itemized by type of product in a separate table. Copies of the report are available for 10c from Bureau of the Census, Washington 25, D.C., or at field offices of U. S. Department of Commerce.

Portland Cement Production

THE PORTLAND CEMENT INDUSTRY produced 28,643,000 bbl. of finished cement during September, 1956, as reported by the Bureau of Mines. This was an increase of 6 percent over September, 1955. Mill shipments totaled 29,935,000 bbl., an increase of 1 percent, compared with September, 1955, while stocks on hand were 15,538,000 bbl., 59 percent more than on the same date a year ago. Clinker production during September, 1956, amounted to 27,324,000, an increase of 6 percent over the September, 1955 figure. The output of finished cement came from 160 plants in 37 states and Puerto Rico. During the same period of 1955, 26,958,000 bbl. of finished cement were produced.

Plans Research Center

CELOTEX CORP., Chicago, Ill., has purchased a 12-acre site, including several buildings, as a step in expansion of research facilities. The property is in Des Plaines, Ill., and will become the center of Celotex research, according to O. S. Mansell, president. Skidmore, Owings and Merrill is designing the initial laboratory structure, to be built soon.

•

KERN ROCK CO., Bakersfield, Calif., has announced plans for building a $250,000 plant at Wheeler Ridge and U. S. Highway 99.

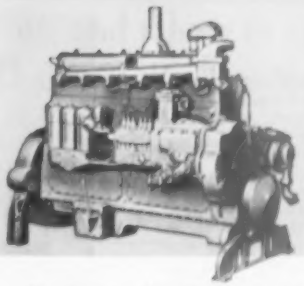
(Continued on page 56)

PROOF OF PERFORMANCE!

After 8 years' experience with a D13000, "nothing but another Caterpillar Engine" was considered by the Wenonah Sand & Gravel Co. for its second dredge

This CAT* D13000 Engine drives a 6" pump in a hydraulic sand dredge, operated by the Wenonah Sand & Gravel Co., Wenonah, N. J. There's a 70-foot lift through 600 feet of pipe to the wash tower. The engine, purchased several years ago, is the company's second D13000. According to Earl T. Kroll, Chief Mechanic, here's why: "Having used a duplicate of this engine in another dredge since 1946 with unquestioned economy and reliability, when we wanted to put another dredge into service, there was nothing but another Caterpillar Engine for us, a choice we haven't regretted."

This is just one of thousands of cases where the performance of one Caterpillar Diesel has sold another. There's a reason. These rugged units, available up to 650 HP (maximum), pay off in dollars and cents *on the job*. Simple to operate, they need a minimum of attention and maintenance. And they're sturdily built for a long life of low-cost use in *every* type of construction equipment. What's more, your Caterpillar Dealer stands back of them with prompt, capable service whenever and wherever it's needed!



NOW IN THE CAT POWER LINE-UP: THE NEW D342, AN EVEN MORE EFFICIENT UNIT!

Replacing the D13000, the more powerful, more compact 6-cylinder D342 delivers 210 HP (maximum). And with Caterpillar 4-cycle design, the fuel system requires no adjustment and there are no air boxes or cylinder ports to clean. Your maintenance is reduced to a few minutes a month for oil and filter changes. For complete information about this and other modern heavy-duty engines, see your Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

MODERN HEAVY-DUTY DIESEL POWER

Schramm Truck Mounted Rotadrill drives right to the drill site—often where bigger rigs can't go. Drilling is a one-man operation; simply lower out-riggers, raise mast and attach drill pipe and bit.

Coming Conventions

January 28-February 2, 1957—
American Road Builders' Association, Convention and Road Show, National Amphitheater, Chicago, Ill.

February 11-14, 1957—
National Sand and Gravel Association, 41st Annual Convention, Statler Hotel, Los Angeles, Calif.

February 11-14, 1957—
National Ready Mixed Concrete Association, 27th Annual Convention, Statler Hotel, Los Angeles, Calif.

February 25-28, 1957—
National Concrete Masonry Association, Annual Meeting and Exposition, Hotel Jefferson, St. Louis, Mo. Exhibit at Kiel Auditorium.

February 25-28, 1957—
American Concrete Institute, 53rd Annual Convention, Statler-Hilton Hotel, Dallas, Texas.

March 5-9, 1957—
American Concrete Pipe Association, 49th Annual Convention, Shoreham Hotel, Washington, D.C.

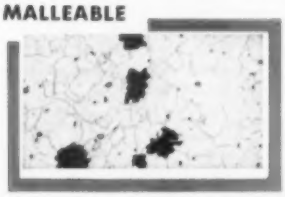
April 18-19, 1957—
Western Concrete Pipe Association, Annual Spring Meeting, Fresno Hacienda Motel, Fresno, Calif.

June 16-21, 1957—
American Society for Testing Materials, 60th Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N.J.

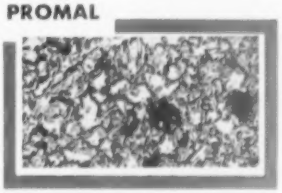
Link-Belt Promal chain specified to resist heavy loads and abrasive wear

GREATER WEAR RESISTANCE of Link-Belt H-Class Promal Drag Chain has been proved in grueling conveying service under severely abrasive conditions. Promal's extra strength provides low-cost, long-life performance where ordinary chains fail.

MALLEABLE



PROMAL



MICROPHOTOS show difference between ordinary malleable iron and Promal. Left—white areas in malleable microphoto represent "free iron" . . . black shows soft nodules of carbon. Right—dark areas in Promal structure show stronger, stiffer reinforcing material which strengthens metal; resists distortion, wear.

Specially heat-treated malleable iron provides extra wear resistance

Fewer conveyor shutdowns and minimized replacements are economies realized by users of Link-Belt Promal chain. Its greater strength absorbs continuous impact loads — and wear resistance supplies the durability to cope with severe abrasion.

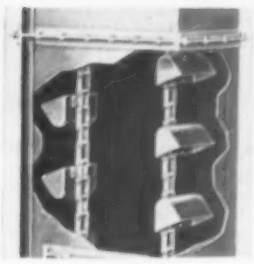
Promal is more than a partially annealed or surface-hardened malleable iron. Developed by Link-Belt, this specially heat-treated malleable iron is actually transformed into a metal of radically different physical properties. Promal, because of uniform micro-structure throughout its whole section, provides greater ultimate strength, higher yield point, exceptional fatigue resistance and a remarkable capacity to withstand abrasive conditions.

For unusually abrasive or mild corrosive conditions, Promal chain can be furnished with "file-hard" surfaces. Copper bearing or special alloy content also available.

How and where to apply Promal Chains in the Non-Metallic Industries

Choose Link-Belt Promal chains for highly abrasive conditions—for extra strength and wear resistance demanded by heavy loads or long, sliding conveyors. They last much longer . . . cost but a little more.

The wide range of Link-Belt chains available in Promal includes all types of cast and combination chains.

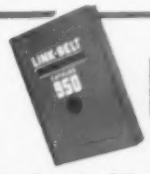


Class C combination chain is one of the most popular types for general purpose elevator and conveyor service. The cast center links and steel sidebar combination forms a strong, rugged yet inexpensive elevating medium. Attachments are available for both cast center links and the steel sidebars so that desired bucket spacing may be accommodated.

Ley bushed chain withstands grueling service conditions

Rugged, reinforced cast links with renewable, hardened steel bushings on Link-Belt Ley Bushed chains minimize abrasive wear. Shields on integral sidebars deflect dirt and abrasives from joints. Steel connecting pins are also shielded —and locked against rotation. Heels on inside of links provide wear-resistant sliding surfaces and guide the chain onto the sprocket.

HEADQUARTERS FOR CHAINS, SPROCKETS is your nearby Link-Belt factory branch store or authorized stock-carrying distributor. Write for 342-page Catalog 950.



LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 14,202

Enter 1415 on Reader Card

SYMONS® PRIMARY GYRATORY CRUSHERS

These gyratory crushers are built for big tonnage, heavy duty primary breaking in 30″, 42″, 48″, 54″, 60″ and 72″ feed opening sizes, for capacities up to 3500 or more tons per hour.

SYMONS VIBRATING BAR GRIZZLIES

Built for heavy duty, large capacity primary scalping service. Particularly effective when handling wet, sticky or gummy rock. Will handle feeds up to 30″ and larger.

SYMONS CONE CRUSHERS

For secondary and finer reductions, Symons Cone Crushers, in both Standard and Short Head types, are built in sizes ranging from 22″ to 7′ in diameter, for capacities from 6 to 900 or more tons per hour.

SYMONS HORIZONTAL VIBRATING SCREENS

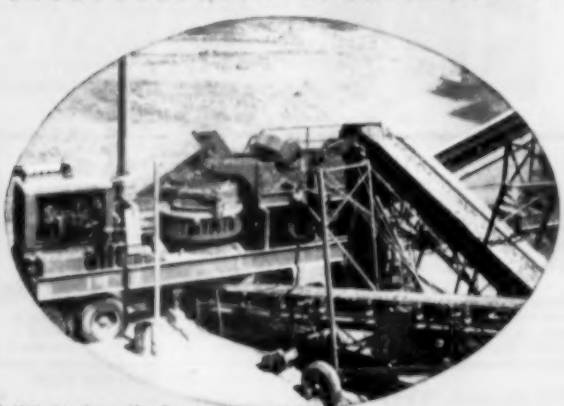
Permit level, positive, large capacity screening of extreme accuracy. Built in single, double and triple deck types in a wide range of widths and lengths. Dust housing available for handling multi-aggregate bituminous mix in asphalt work.

NORDBERG GYRADISC® CRUSHERS

Built to supplement the world renowned Symons Cone Crusher, the Nordberg Gyradisc provides a medium for the profitable production of sand sizes of specification material.

NORDBERG GRINDING MILLS KILNS—DRYERS and COOLERS

Built to meet specified conditions for wet or dry processing in the manufacture of cement and numerous other processes where friable material must be comminuted to fine sizes. Mill types include Rod, Ball, Pebble, Tube and Compartment types in sizes from 6′ to 13′ diameter and up to 50′ in length.

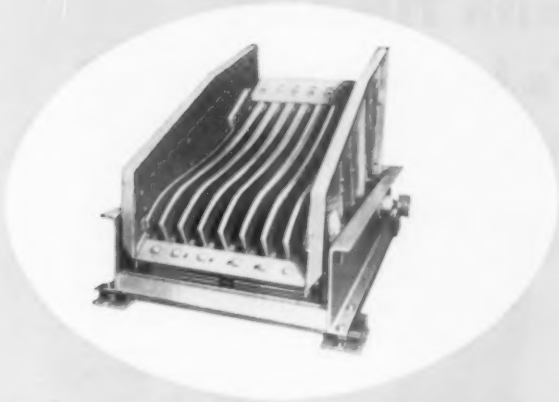


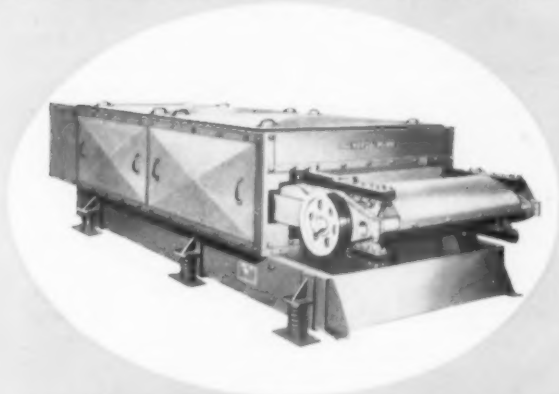
PORTABLE PLANT SERVICE

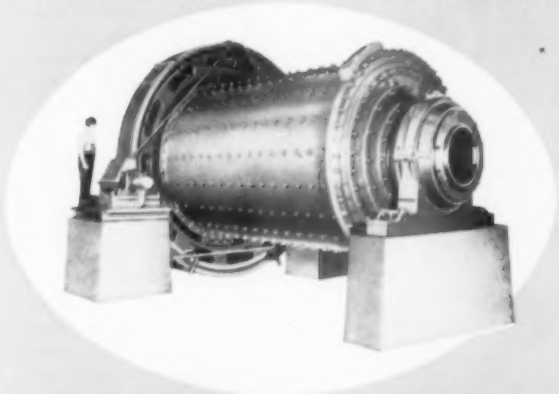
Increasing numbers of portable plant operators are now using Symons Cone Crushers for big capacity of fine product . . . such as this Cedarapids Model 4-ICS portable intermediate crushing plant utilizing a 4′ Symons Cone Crusher.

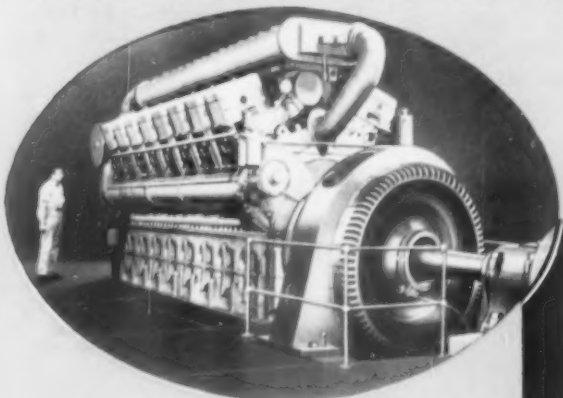
NORDBERG ENGINES

Ranging from small "packaged" power units to large stationary engines for base load and standby power, Nordberg engines are built in a wide range of types for Diesel, Duafuel® and Spark-Ignition Gas operation, in sizes to over 12,000 hp.









"Bit cost so low with TIMKEN® multi-use rock bits it's hardly an item"

...says Acme Construction Co.

LOCATION: By-Pass State and Federal Project, U. S. Route #52, Welch, West Virginia.

OPERATING CONDITIONS: Soft shale to very hard sandstone.

FOR precision drilling in mountain-side formations from soft shale to very hard sandstone, Acme Construction Co. of Beckley, W. Va., used only one size of Timken® multi-use bits. With controlled distribution of reconditioned bits, Acme got a bit cost so low they barely consider it an item.

Driller after driller gets similar savings. With correct and controlled reconditioning, Timken multi-use bits give the lowest cost per foot of hole when full increments of steel can be used in ordinary ground.

But they may not be the best answer for *all* your drilling problems.

When you drill in hard, abrasive ground, you get higher speeds and greater economy by switching to Timken carbide insert bits. They're your best bit for extremely deep holes, constant-gauge holes, small diameter blast holes.

Timken multi-use and carbide insert bits are important time-savers when your drillers change bits. They're interchangeable in the same thread series. And dozens of different Timken bits fit the same drill steel. Bits can be changed right on the job.

All Timken bits are made from Timken fine alloy steel and have special shoulder unions to protect the threads from drilling impacts. We're the only removable rock bit manufacturer that makes its own steel. We do it to control quality at every step of the way. To find out which bit will save the most and do the best job for you, call on Timken Rock Bit Engineering Service. Write: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

your best bet for the best bit... for every job

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

Enter 1444 on Reader Card

HINTS AND HELPS

PROFIT-MAKING IDEAS DEVELOPED BY OPERATING MEN

Ribbed Belt Prevents Slippage

A LARGE MIDWEST SAND AND GRAVEL PRODUCER is using a 30-in. belt conveyor, 130-ft. centers, as the primary conveyor to scalping screen. This rib-

Ribbed conveyor belting helps to dewater pit-run feed and prevent spillage

bed belt construction serves both to dewater pit-run feed and to prevent slippage of material.

It will be noted in the illustration that water sprays are directed against belt to clean it. There is also a belt conveyor back-stop to the right of the head pulley shaft.

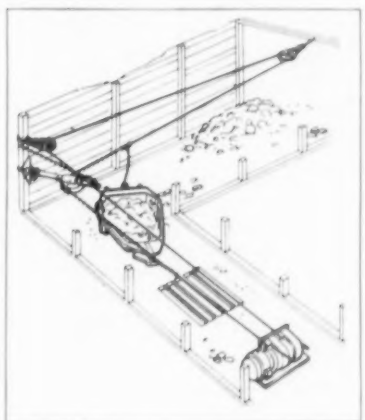
Coyote Tunnel Driving Method

DRILLING AND EXCAVATION in western and Pacific Coast areas have kept pace with the most modern methods and equipment. In a single quarry it is not unusual to find large and small diameter rotary drills, heavy-duty percussion drills, mobile churn drills, and "travel" drills for secondary blasting.

Coyote blasting techniques may play a more important part in future quarry planning for there are certain advantages to this type of shooting. Driving a coyote tunnel has had disadvantages as the opening must be kept as small as possible which inhibits drilling and mucking. Often the tunnel is too narrow for a conventional ore car, and cars as small as an ordinary powder box have been used to carry muck from the face to the dump. Even if the tunnel is large enough for an ore car, a turntable must be used for the design of tunnel blast requires that the entry-way and main cross-cuts be in the shape of a T or an L.

In western metal mining, "slushing" is a term widely used and understood as most mines use some type of slusher as part of their underground loading operations. In essence, a slusher is a drag-scraper especially designed for handling rock. They range down in size from 5 cu. yd. The general practice is to drag the rock to a loading apron or to an ore pocket. From this holding unit, the rock is then drawn into cars by means of suitable gates. Installation costs are low and slushing might be used to advantage in some of the smaller quarries.

However, until recently a slusher had to work in a straight line. Now a device is available that will permit a drag scraper to go around a corner with the load of rock and return to the working face, again turning the corner unassisted. Thus, in driving a coyote tunnel the size of the opening can be kept in the 30-in. wide range with low headroom requirements. Aft-



Details of "round-the-corner" sheave installation and how it functions with scraper

er the face is blasted, the cable and sheave assembly is mounted as shown in the sketch. The key to this setup is the "round-the-corner" sheave block shown in the illustration. The "round-the-corner" assembly is fastened to the wall by a chain which is anchored to the face of the tunnel wall by expansion bolts inserted in drill holes. In addition to the sheave, a specially designed bridle consisting of short lengths of chain and shackles are part of the assembly. As practically all quarries have a source of compressed

"Round-the-corner" sheave permits drag scrapers to make a right angle turn

air, all that is required is a tugger hoist and a slusher or scraper.

This "round-the-corner" assembly can be mounded from a modified but conventional drill column, if desired. The system was developed by the Alloy Steel and Metals Co. and its use in western operations is past the experimental stage. It is now in use by one cement company.

Vibrating Feeder Serves Jaw Crusher

AT AN EASTERN CRUSHED STONE PLANT, stone is fed to a 30- x 42-in. Lippmann grizzly King jaw crusher (125-hp. drive) by a 42 in. x 10-ft. Jeffrey-Traylor 5H electric vibrating feeder. This feeder is probably one of the first of its type applied to this work. An apron feeder is more commonly used ahead of jaw crushers. To protect the pan during dumping, truck loads are dumped into an adjacent 30-ton hopper from which the stone flows slowly by gravity to the feeder. Three suspended ballast chains ahead of the feeder control the flow. This feeding arrangement has worked well, although in wet weather the material tends to pack.

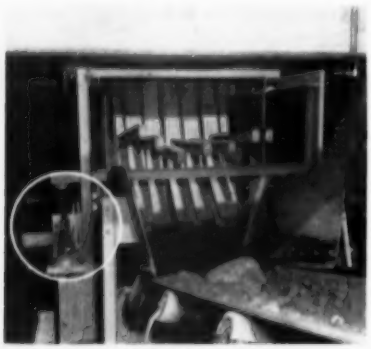
Three principal advantages are claimed for this feeding arrangement: first, there is practically no wear as there are no moving parts; second,

Electric vibrating pan feeder supplies jaw crusher

there is no clean up problem underneath; and third, it is possible to choke feed the crusher, increasing or decreasing volume when necessary by the installation of a simple rheostat control.

Screw Jacks Control Feed Rate

A LARGE SAND AND GRAVEL PRODUCER on the West Coast employs a truck hopper having an unusual fea-



Jacks (one circled) control the opening size of the "finger" feeders

ture. This hopper is fed by a fleet of Euclid bottom dump trucks. From the hopper the pit run material is carried by a 42 in. belt conveyor to the primary crusher. Material going to the belt is essentially gravity fed with the feed rate controlled by a series of "fingers" that are hinged at the top. Each finger operates individually with the size of the opening controlled by raising (or lowering) a horizontal cross bar mounted in front of the assembly. A screw jack mounted at each end of the cross bar controls the size of the opening.

Nine ways to ruin drill steel through carelessness, rough and improper use

Misuse of Drill Steel

THERE ARE MANY WAYS of ruining good drill steels, but the following nine were picked out as the most destructive:

1. Storing steels in the open. Rain, snow and normal dampness will rust both the exterior and center hole of a steel, leaving a rough surface particularly susceptible to metal fatigue.

2. Handling steels roughly during transportation. Deep scratches on the outer surface quickly become major structural weaknesses. (For identification purposes, stamp a number into a steel. This makes it easy to find and insures extra speedy breakage.)

3. Forgetting to regrind the steel. That tough tungsten carbide insert will lose its original cutting potential and then the rock drill will damage the rod instead of the rock. You'll crush the insert.

4. Ignoring instructions for grinding steels. Grind the bit just as sharply as you can. Then, while it's still hot, dip it into a bucket of cold water. This is always good for a laugh—and early breakage.

5. Running your drill with too little pressure on the steel. This will make the drill jump on the steel's collar and keep the piston from hitting the steel. It develops particularly high stresses on the rod.

6. Using the pusher with too much force. This helps bend the drill steel, making it break early in the game.

7. Using a rock drill with worn-out rotation device. If the steel doesn't rotate with each blow, it will suffer heavy stresses on both the rod and bit. This means early breakage.

8. Using worn-out chucks and pistons in the drill. This is probably the best way to ruin the shank of your drill steel. That's because the shank will have a tilted position in the rock drill and the piston will hit only one side of its surface. After running your drill a while, the steel's shank will look like a rivet head.

9. Using your steels for scaling. For outright ruin of a good drill steel in the shortest possible time, you just can't beat this method.

The nine ways to ruin good drill steel were reported by representatives of Atlas Copco, distributor of Sandvik Coromant integral drill steels.

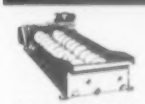
The simple, effective, economical way to wash and classify material!

THE combination of equipment shown above is an Eagle Complete Washing-Classifying-Dehydrating Section. These Sections are designed to meet capacity and product requirements of any producer. They are a "package unit"; can be set down and integrated with any plant.

There is NO equipment or combination of equipment that comes even close, as far as ease of operation, economy and overall results are concerned. Eagle pioneered material washing and classifying and has the broadest experience in the field.

Material, in this case, is flumed to the Eagle Water Scalping-Classifying Tank. The power-operated valves assure removal of excess water, and classification within the tank by utilizing natural settling rate of particle sizes. Gated splitters below each valve, enable throwing desired percentage of each valve's bleed to multiple-cell Collecting-Blending Flume below splitters. The multi-cell Flume below the tank routes the desired gradations to three Eagle Screw Washer-Classifier-Dehydrators. They wash and further dewater the material, producing concrete sand, mason sand and plaster sand. Or, two screw units can produce concrete sand while one produces mason sand—any combination you want—utmost flexibility. The cost? Mere pennies per ton of material to meet specifications!

THE EAGLE LINE


COARSE MATERIAL WASHERS


FINE MATERIAL WASHERS


LOG WASHERS


WATER SCALPING—CLASSIFYING TANKS.


"SWINTEK" DREDGE LADDERS


CUTTER HEADS


COMPLETE DREDGES


BREAKER BALLS & PILE HAMMERS

Send for YOUR Copy of *new* 44-Page Catalog 55.

EXPERIENCE, PROGRESS, SERVICE, SINCE 1872

EAGLE IRON WORKS

137 HOLCOMB AVE., DES MOINES, IOWA

Enter 1450 on Reader Card

NEW MACHINERY

Vibrating Screen

IOWA MANUFACTURING CO., Cedar Rapids, Iowa, is adding a new 60 in. x 16-ft. triple deck model to its line of Cedarapids horizontal vibrating screens. The new screen, largest in the line, is designed for heavy-duty applications in stationary crushing and screening plants. Increased capacity as well as more accurate gradation is claimed by the manufacturer because of the level position of the screen. The unit features a steel plate feed box at the feed end and an open discharge end. The screen will be shown for the first time at the A.R.B.A. road show.

Enter 300 on Reader Card

Tractor Scrapers, Dozers

CLARK EQUIPMENT CO., Construction Machinery Division, Buchanan, Mich., has engineered as a unified line of equipment its new "Michigan" tractor scrapers and dozers, together with its tractor shovels, with models of corresponding capacities utilizing the same power shift transmissions, torque converters, axles and engines. Tractor scrapers in three capacities to be produced by Clark are Model 110 (8- to 10½-cu. yd.); Model 210 (12.7- to 18-cu. yd.); and Model 310 (20- to 27-cu. yd.). Engines are 165, 210 and 335 hp. respectively. The two new dozers are Model 280, equipped with an 11-ft. 3-in. blade; and Model 380, with a 13-ft. 3-in. blade. Both have Cummins turbo-charged diesels to furnish power to pushload the 18- and 27-cu. yd. scrapers. The illustration shows a Model 110 scraper teamed with a Model 180 dozer on a push-loading operation. The additions to the Clark line of equipment will be shown for the first time at the A.R.B.A. road show.

Two new Michigan tractor shovels, the 4-cu. yd. Model 275A and 6-cu. yd. Model 375A, will be shown for the first time at the A.R.B.A. road show. The larger unit can lift 30,000 lb. while stationary and carry 15,000 lb. at 4 m.p.h.; the smaller lifts 22,000 lb. and carries 11,000 lb.

Enter 301 on Reader Card

Portable Surge Bin

DIAMOND IRON WORKS DIVISION, Goodman Manufacturing Co., Halsted St. and 48th Place, Chicago 9, Ill., has developed a portable surge bin to provide continuity of operation for any type portable crushing and screening plant. Material received into the 11-cu. yd. hopper is loaded into trucks via the 36-in. wide conveyor at the rate of 7 cu. yd. per min. The surge bin is clutch-controlled, has a 9-ft. 5-in. clearance under the head pulley, and is equipped with an air-cooled engine with fluid coupling.

The Diamond Type 77 All American portable crushing and screening plant, featuring electrical control, will be exhibited at the A.R.B.A. road show.

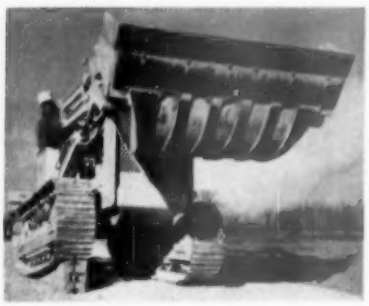
Enter 302 on Reader Card

Earthmoving Equipment

EUCLID DIVISION, General Motors Corp., Cleveland 17, Ohio, announces eight new machines and improvements in several other models. Three new scrapers are: 24-cu. yd. Model TS-24, having two engines (518 total hp.); Model SS-24, single engine, 24-cu. yd. scraper; and 18-cu. yd. Model SS-18, a 4-wheel single engine tractor powered by a 300-hp. engine.

Model C-6 crawler tractor has a 218-hp. G.M. engine and Allison Torqmatic drive. New rear dump hauling units are Model S-7 with 8-cu. yd. struck capacity, powered by a 143-hp. engine; Model S-18, with 23-cu. yd. struck capacity, powered by a 300-hp. engine; and Model R-40, with 26-cu. yd. struck capacity, powered by twin 235-hp. G.M. engines or 250-hp. Cummins engines. All the above machinery, together with the 13-cu. yd. struck capacity, Model S-12 bottom dump unit illustrated, will be shown first at the A.R.B.A. road show.

Enter 303 on Reader Card



Crawler-Loader

AMERICAN TRACTOR CORP., Churubusco (Fort Wayne), Ind., is bringing out two new TerraTrac crawler-loaders in the 1½- to 2-cu. yd. range. Both have power-shifting terramatic transmission which provides independent power control of each track; power steering; and torsion bar track suspension (allowing for maintenance of a level bucket cutting edge despite ground irregularities — see illustration).

Two new heavy-duty crawler-mounted angling dozers in the 75 (Model 800) to 90 (Model 1000) net hp. diesel class have also been developed by American Tractor Corp. Fingertip hydraulic control permits angling of the blade in any direction. Both are equipped with terramatic transmission and torque converter drive. This equipment will be first shown at the A.R.B.A. road show.

Enter 304 on Reader Card

(Continued on page 158)

Enter 1413 on Reader Card

OLD VETERANS make fine salesmen!

IT doesn't always take a new up-to-date rig to create a repeat order. The North Star Concrete Company of Mankato, back in 1930 bought an old Northwest Model 3 built in 1927 (30 years ago). It is still operating (and we leave it to you to decide whether its performance was good)—for North Star has recently taken delivery on a new Northwest Model 25 Crane.

Northwests make money and there are a number of Northwest advantages responsible for it. These are advantages that you should know *all* about before you buy.

The "Feather-Touch" Clutch Control, the Cushion Clutch, Uniform Pressure Swing Clutches, Cast Steel Machinery Bases and Machinery Side Frames, the wide selection of Northwest Boom Hoist Equipment—these and other Northwest features along with that marvelous Northwest ability of always being ready to go, have made one out of every three Northwests sold a repeat order—and repeat orders are proof of more than satisfactory performance.

Ask a Northwest Man about these advantages.

NORTHWEST ENGINEERING COMPANY
135 South LaSalle Street • Chicago 3, Illinois

C25-2-5

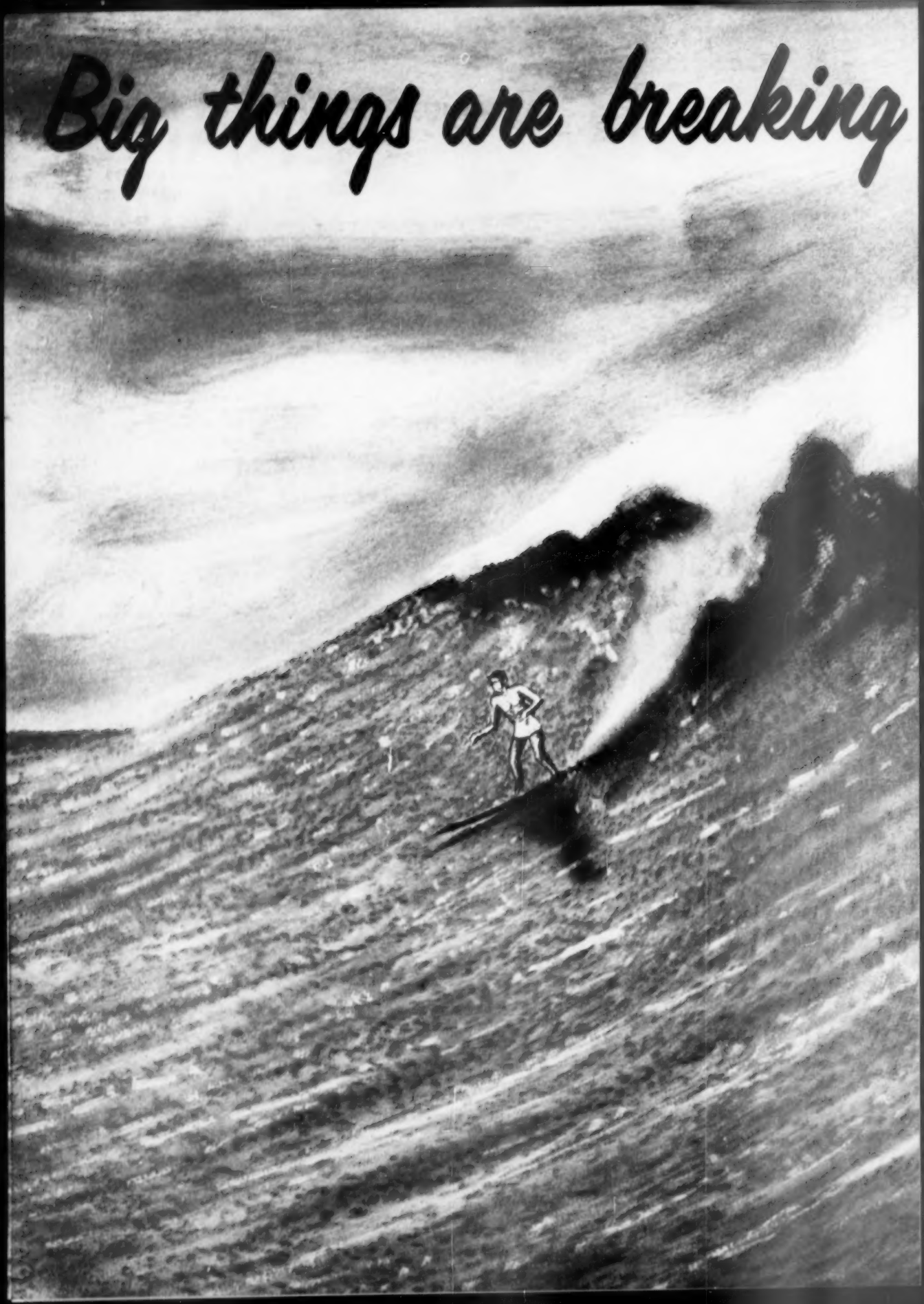
NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Convertible for any Mining Material Handling or Excavation Problem

BUILD BETTER ROADS TODAY · FOR A GREATER AMERICA ·

See you at the ROAD SHOW CHICAGO Jan. 28-Feb. 2, 1957


Big things are breaking

at CEDARAPIDS!

See the new revolutionary
Cedarapids **BITUMINOUS PAVER**
at the
1957
ROAD SHOW

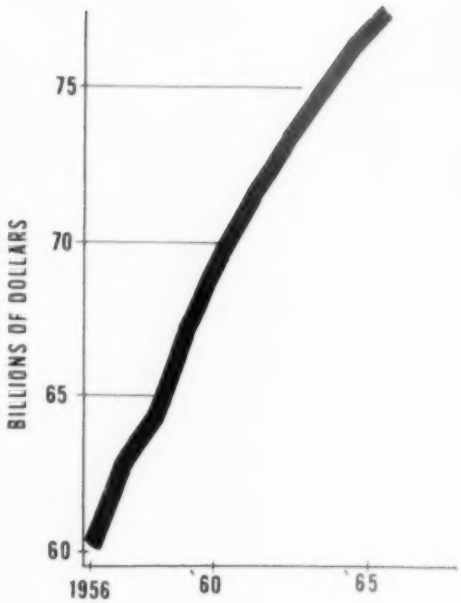
A.R.B.A. ROAD SHOW
Cedarapids
BOOTH 723
OHIO TURNPIKE
10th Ave.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U.S.A.

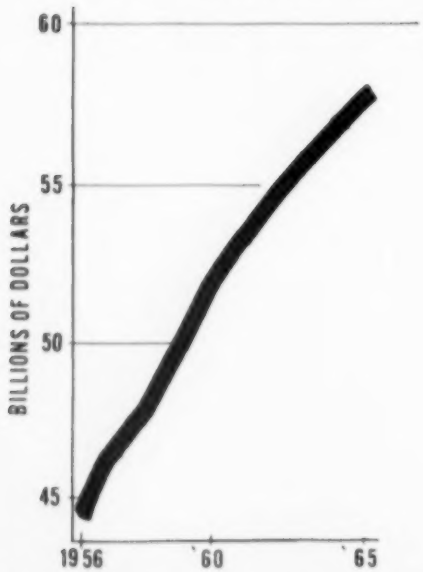
It Looks like More Prosperity——

Profile of Expansion:

Construction industry for next 10 years

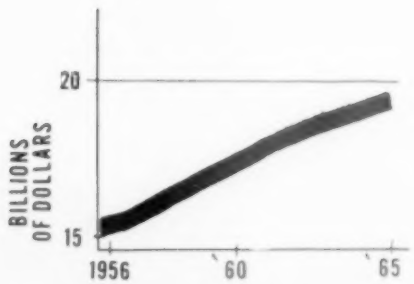


A lot of this will be NEW CONSTRUCTION . . .



Estimated by Associated General Contractors of America.

But don't overlook Maintenance and Repair



FORECAST

By JOSEPH N. BELL

with Reservations

The economy-boisterous and growing

NO MATTER WHERE YOU LOOK these days, you can find businessmen, public officials, economists and elevator operators freely saying that the economy of the United States never looked rosier. Although cautious voices are hard to make out in this symphony of optimism, they are being raised. And curiously enough, many of them are coming from the rock products industries—which, on the surface, should be the most optimistic of all.

Many cement manufacturers are retrenching in their thinking after an unprecedented splurge of expansion. More than a handful of sand and gravel producers are in trouble because of low prices and rugged competition. And crushed stone operators are expanding cautiously, but prospering generally. There is growing concern with over-expansion throughout the field, as reflected in the returns from ROCK PRODUCTS' forecast questionnaire.

This recurring conservatism stands out all the more when contrasted with the almost universally cheerful outlook among others in our economy. Here are some typical notes:

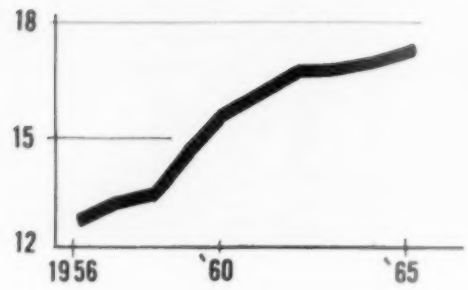
Board Chairman Melvin Baker of the National Gypsum Co. terms the construction industry long range outlook "staggering." He predicts construction will set another all-time record in 1957.

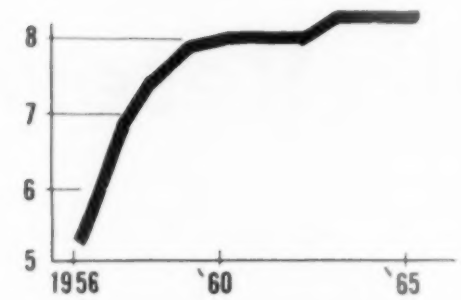
INDEX

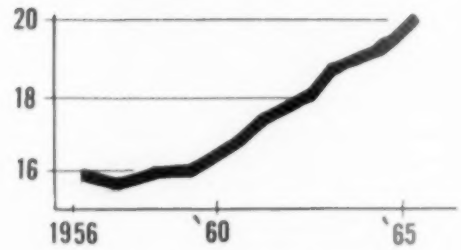
The collective opinion of 221 of the nation's leading economists—polled by the F. W. Dodge Corporation—agrees that 1957 will be the best general business year in history. According to Dodge economist George C. Smith, the experts are "unusually unanimous" in their belief that 1957 business will be excellent and that no downturn is in sight. This same group predicts that gross national income will reach an annual rate of $420 billion by the end of next year—an increase of $12 billion over the third quarter of 1956.

Dr. Emerson Schmidt, director of economic research for the U. S. Chamber of Commerce, puts it this way: "While the expansionist and contractive forces are always vying with each other and

Different segments of the economy will spend their billions for new construction at different rates over the next 10 years







Estimated by Associated General Contractors of America.

Along with the survey returns which made possible our Forecast Issue came this note:

"I really think you fellows ask too much of industry in the way of reporting."

After which, this gentleman thoughtfully filled out and returned his questionnaire to us.

We know that a lot of our readers feel the same way. That's why the response was so heart-warming—and so well appreciated.

We'd just like to point out that these surveys do help us—to help you. If one piece of helpful information to you comes out of the results of these surveys, then we feel they have been successful. We can only hope you feel the same way.

—The Editors

today are rather evenly poised, there is good reason to believe that in the period ahead the expansionist forces will outweigh the contractive. To a considerable extent, the readjustments in the soft sectors of our economy have already been absorbed. The readjustments are, for the most part, behind us, while the economy has operated at virtually full capacity. We have never in our history had a serious general recession as long as new plant and equipment has held up. For this reason, the threat of a substantial contraction in the economy is remote."

Even in the midst of this bursting optimism, the construction industry stands apart as a spe-

cially blessed participant. The most conservative predictions see nothing ahead but growth and prosperity for the construction industry.

New construction in 1957 will jump five percent over the '56 record, with no general decline in sight, according to predictions of the Department of Commerce. The Associated General Contractors of America predicts construction activity to show an increase in new construction from $60 billion in 1956 to $77.6 billion in 1957.

Most of the specialized factors in our burgeoning economy favor the construction industry. Two of the largest increases to be expected in the next 20 years will come in population and automobiles. More people mean more schools, homes, and factories, according to **Architectural Forum** magazine. This population increase also means relocating whole segments of our population around cities which must absorb this growth. Thus the demand for public utilities—where a backlog already exists—will continue to grow, along with the other facilities required by this growing and shifting population.

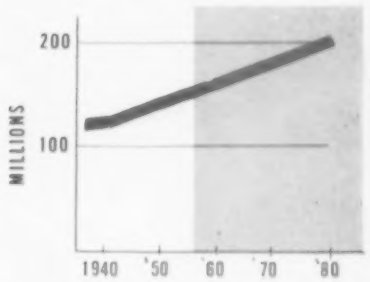
Automobiles are expected to double in number in the next two decades. This means more roads and highway structures then even the expanded Federal-aid program encompasses.

The soft spots that have turned up in housing and the failure of the new highway program to pick up early steam are looked on only as temporary setbacks. The cold war, ominous at the moment, is causing concern, but is exerting no appreciable unhealthy effect on the economy.

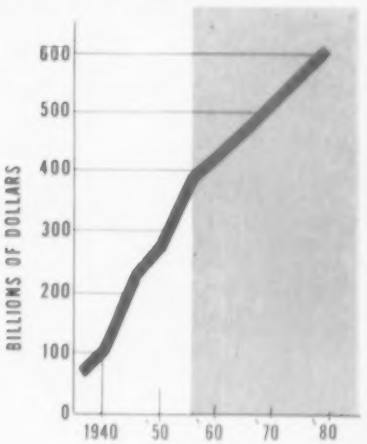
In view of the general outlook of continued and growing prosperity—especially in the construction field—the rock products industries are curiously restive. In effect they seem to be saying: "We'll believe it when we see it—and when we see it, we'll be ready."

Which may or may not be the case.

Population of the United States will continue to grow for the next 25 years . . .



standard of living will grow even faster . . .



the highway program—latent but lagging

The most significant information developed from ROCK PRODUCTS' survey of the 48 state highway departments is that there is a vast amount of inertia to be overcome before the program gets rolling. Of the 35 states which replied to questions on the status and future plans of their road-building program under the new Federal-aid legislation, only a handful had any specific plans to offer. The rest ranged from "no information available" to spotty data on scattered aspects of the road program.

From the information turned up, however, and from comments offered on the road program by rock products producers, some reasonably sound conclusions can be drawn:

1. Expanded road building under President Eisenhower's $33 billion program is off to a slow start.
2. Main reasons for delay in getting it underway are: (a) Failure of many states to legislate matching funds for the federal appropriations; (b) Lack of trained highway engineers

WHERE THE NEW HIGHWAYS WILL GO:

THIS WILL BE THE "NEW LOOK"
OF THE NATION WHEN THE NATIONAL
SYSTEM OF INTERSTATE HIGHWAYS
IS COMPLETE

and apparent disinclination of most states to offer young engineers enough money to attract them; (c) Slow going in right-of-way acquisition.

Regardless of seeming foot-dragging on highways, most rock products producers are not disappointed in the way things have been going. An overwhelming percentage of those answering survey questions indicated an understanding of the problems facing the highway builders and no particular displeasure with the slow progress.

Typical of this group is a cement executive who said: "It is only human to always hope for a market to develop faster than it actually does. However, I am bound to say that I feel the new inter-state road program is progressing as fast as anyone had a right to expect, perhaps faster."

Another explained his feeling: "In spite of our somewhat pessimistic attitude, we do look for a vastly increased use of cement in the next 10 years and we are attempting to project from conservative market studies just what our own course should be." One executive expressed an attitude that indicated full appreciation for the size of the job. He said: "We believe it is impossible to judge at this time whether or not the road program is getting underway too slowly. Certainly, the general public has no concept of the "lead time" required before actual construction gets underway.

Numerous respondents, though, have become disenchanted with the highway program as a guaranty of prosperity for years to come. One of them commented acidly: "This road program which is supposed to descend on the sand and gravel industry and create a utopia is nothing more than a big mythical bonanza. We are ready for this highway program. Bring it on."

Another assessed the highway program's effect on his business like this: "Our state has 717 miles on the Interstate System. If this is built over 13 years, that would be an average of 55 miles per year. We have estimated this would require about 700,000 tons of stone per year, or enough for one good crushing plant. And yet, one equipment dealer here expects to sell 10 crushing plants in the next year."

The straight fact is that most highway departments are in no position at the moment to predict their cement and aggregate requirements or to indicate when, where and of what their new Federal-aid roads will be built. Notable exceptions: Virginia, S. Dakota, Arizona, Connecticut, Ohio, New Mexico, New Hampshire, Maine and Rhode Island.

As R. E. Royall of the Bureau of Public Roads points out: "The law places with the states the initiative in proposing types of improvement. We strongly hope that the states will absorb federal funds at the rate provided. As yet, we do not have from them schedules of future contract awards by years. Many states are uncertain at this time as to what their schedules will be."

So rock products suppliers are waiting—and watching.

Portland cement—calm, cool and cautious

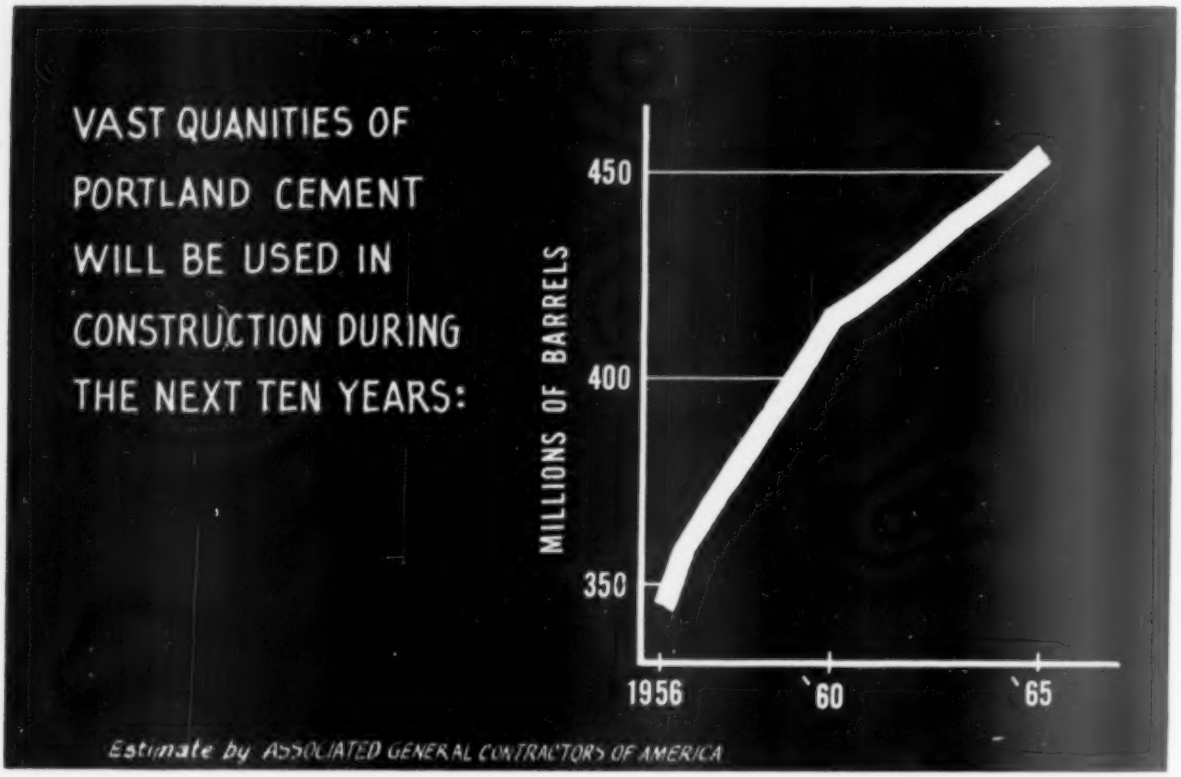
A sharp increase in productivity per worker, and sharp decreases in capital expenditure and expansion plans—these were accentuated in ROCK PRODUCTS' survey of top executives in the American cement industry. Reaction—in some instances violent—to the headlong expansion of the past few years is setting in among the cement producers.

Elation over the road program is subsiding and being tempered by more restrained thinking and the slow start of the program. The spectre of recession and overproduction is haunting some cement people, gets an occasional glance from others, and is still ignored by many.

But overall, the emphasis is on consolidating the new position of the industry rather than talking more expansion. And indications are that this philosophy will prevail for several years to come. So for better or for worse, we're going to have to ride with the cement we have now plus what is presently under construction.

Almost all plants that answered the ROCK PRODUCTS questionnaire showed increase in output expected for 1957—as a result of expansion announced sometime earlier and now reaching the production stage. After 1957, however, expansion and capital investment falls off sharply. Only a few of the companies show an anticipated increase beyond the end of 1957. Capacity increases are principally reflected in the modernizing and expansion of existing plant facilities. Few companies are now contemplating the building of new plants. Exceptions include General, Ideal and Alpha, each of which expects to put new plants in operation early in 1958.

The feeling today of most cement producers regarding further expansion was well summed up by one executive who pointed out: "We do not plan any other capital expenditures of any significant amount before the present expansion costs are assimilated." Another commented acidly: "If there are new plants to be built, we will let somebody else do it."



Labor appears to represent few problems, in spite of expansion. The reason: increased production is being pretty well assimilated in the growing trend in the cement industry toward lower and lower man hours per barrel. Thus, plant expansions are not calling for large increases in working forces.

A minor revolution in increased efficiency now appears to be underway in the cement industry as a result of plant modernization and application of new manufacturing equipment. One producer hoped to step up barrels per man hour from 5.0 to 5.5 in one year; another expected a gain of 0.25 in 1957 and 0.20 the following year; a third predicts a jump of 5.25 to 5.50 in 1957.

More and more cement producers are talking less and less about continued expansion, and are throwing cautious looks over their shoulders at the past. One says flatly: "The recent industry capacity increases will be ample to take care of any projected rise in cement demand through 1960 at least."

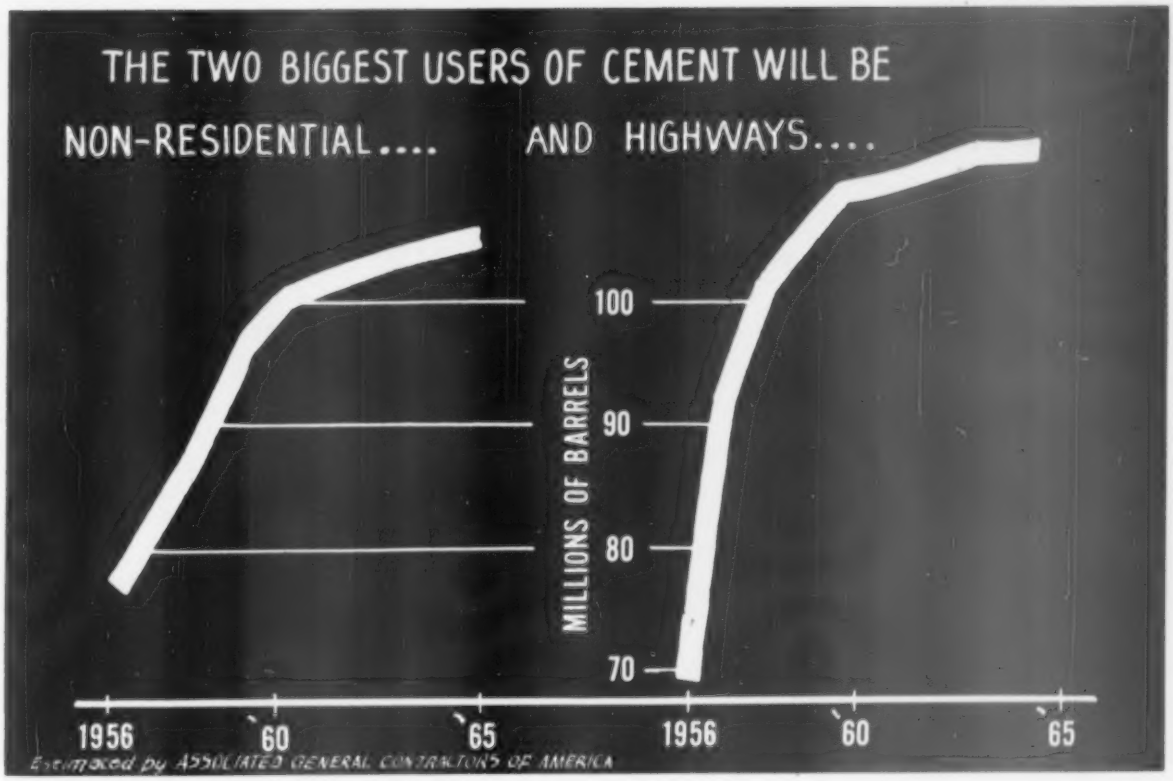
Another points out: "Many sound thinkers feel that we have reached a high point and that we are due still for a recession, if not a depression. If this type of thinking is correct, we are indeed going to be faced with the very serious problem of over-expansion."

Caution is the watchword today in the cement industry. In spite of glowing predictions of growing economy, growing construction demand and the expanded highway program, the cement industry is ready once again to play it close to the chest. They have made a remarkable expansion effort in the last five years. Now they intend to wait and see where it leaves them.

sand and gravel—tight and tempestuous

The sand and gravel operators of the United States are devoting most of their attention to competition these days. This field—more than any of the other rock products industries—is one of tremendous contrasts. Companies planning expansion and others facing virtual obliteration are operating in the same general economic climate—but in widely contrasting local situations. There's no doubt, though, that more plants will be needed to supply the projected demand.

Answers to the ROCK PRODUCTS' survey show that a large segment of the sand and gravel industry is sitting still as far as immediate expan-



sion is concerned, some plants are showing spectacular growth, and some are showing almost as spectacular decreases. The average of those surveyed shows about a 12-14 percent increase planned in production capacity. However, many of the plants that have no immediate expansion plans expect growth by 1960. Expansion expectations average some 25 percent over the long pull.

Answers also indicate that fewer sand and gravel producers are thinking in terms of modernization and technological improvement than is the case among other rock products industries. Less than a third of the sand and gravel respondents indicated that they expect to improve on operating efficiency in the near future. One producer, however, who hopes to jack up his worker productivity from 25 tons per man hour last year to 35 in 1957, said: "It's the only way I'll be able to stay in business."

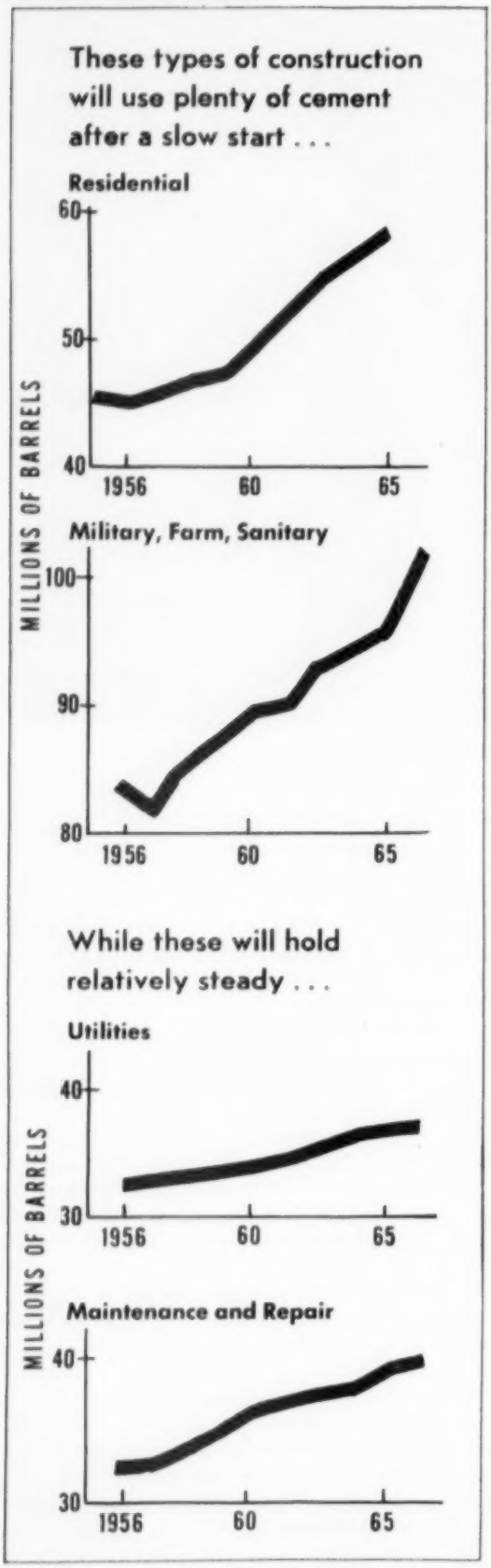
The competitive situation in the sand and gravel business in many areas has grown rugged, indeed. The problem was summed up by one producer this way: "Competition is keener in our vicinity now than it has been in the history of our company, and at this time we're not too sure that we will meet competition at their low quotations and hope for larger volume or sit back and take the better priced contracts for materials and supplies as they come along, and adjust to the lower volume."

Many producers said that sharp competition would hold prices down, and answers were about evenly split on predicting an increase or decrease in sand and gravel prices in the immediate future.

A spokesman for the "decrease" side notes: "We expect a definite increase in competition and definitely lower prices. All the ballyhoo about the road program has intensified the effort of more people to get into the business."

Predicting an increase in prices—with reservations—another producer says: "Prices are almost certain to go up some in our industry. We haven't been able to increase our prices along with our costs of labor and supplies, and we've tried to make a profit in spite of this. On the other hand, prices will be held in line by the larger contractors' ability to produce his own aggregates if the established producer lets his prices get too high."

Problems — beyond increased competition — in the sand and gravel industry were not clearly defined. Only on two difficulties was there rather general accord: the need for better long-term financing and the necessity of procuring adequate reserves for the future.



None of the sand and gravel producers appeared to have qualms about being able to meet the accellerated demand of the highway program. On the contrary, they seem to be ready and waiting—and hoping that the demand will be more substantial than it appears right now.

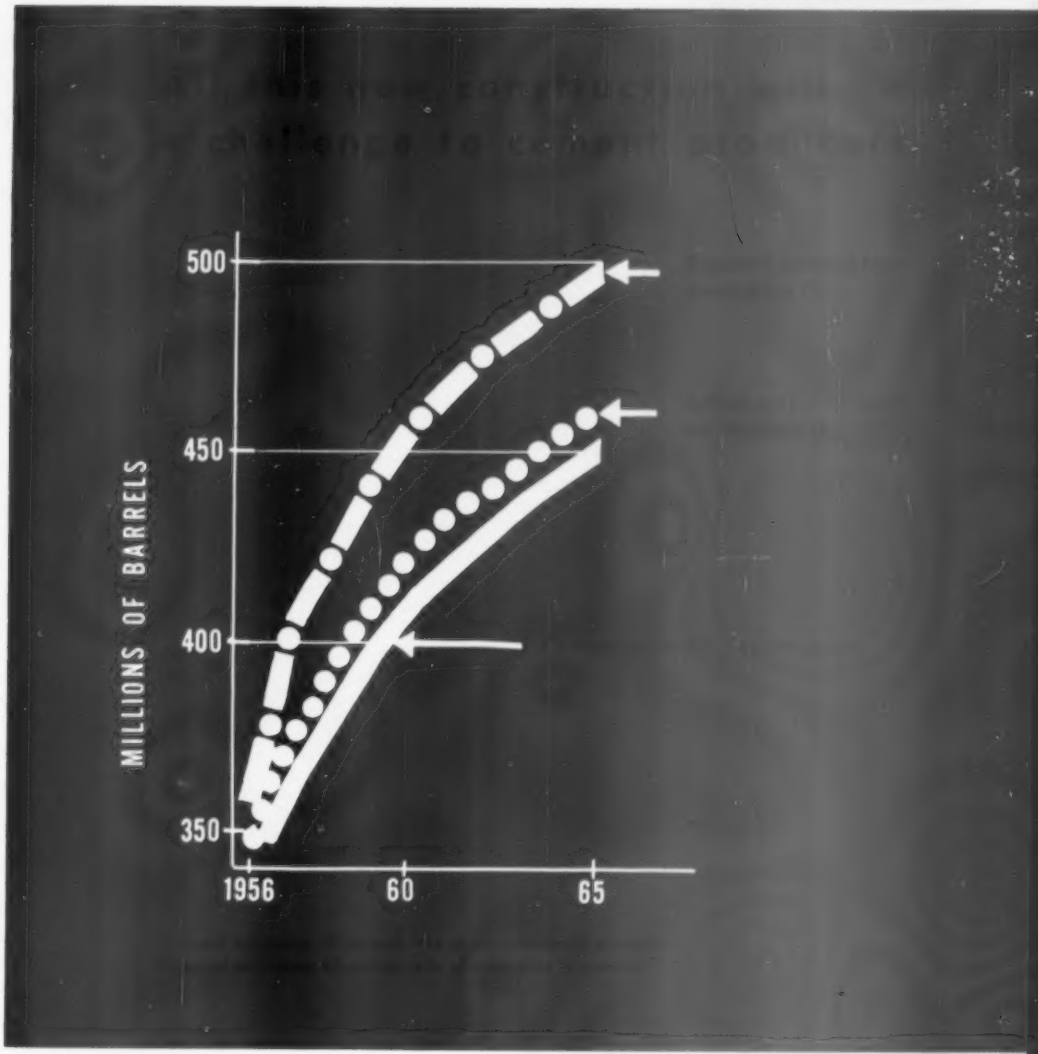
lime and crushed stone aware and ambitious

Optimism is running higher in the crushed stone industry than in its companion sand-and-gravel field. The optimism is reflected in some ambitious expansion plans over the next four years. Crushed stone producers reporting figures to ROCK PRODUCTS show an average increase in 1957 production of 18 percent over this year. By 1960, production increases will average 30 percent over 1956.

Some of this expansion is remarkably ambitious, with several large producers reporting that they expect to double their capacity in the next four years. An overwhelming percentage of increased production is planned through improvement to existing plants rather than in opening new facilities. Almost all crushed stone producers surveyed plan to install capital equipment during this period with the dual hope of increasing production and stepping up efficiency.

Crushed stone people appear acutely conscious of the possibilities inherent in technological advances. Some consider this their major hope for increased prosperity in view of tightening competition. Almost every producer expects to increase productivity through improvements in his plant. Some of the means mentioned most frequently include: better stockpiling; leveling of production; better engineering; use of cost studies; and a large range of such new and better equipment as larger and faster trucks, shovels and crushers. Those who mentioned specific tons per man hour figures illustrated graphically the wide range of efficiency now existent in crushed stone plants. One producer, for example, hopes to increase his productivity per man hour from 7 tons to 9 tons in the next four years, while another indicated he would be content with a jump from 4.9 to 5.1. Other answers ranged between these two extremes.

The crushed stone industry is rather generally expecting a rise in prices, ranging from "slight" to as high as 25 percent in some areas. A number of producers feel that the rugged competitive situation will tend to hold prices down in spite of steadily rising costs. However, there is considerable less crepe-hanging on this score in the crushed stone field than in its allied industries.



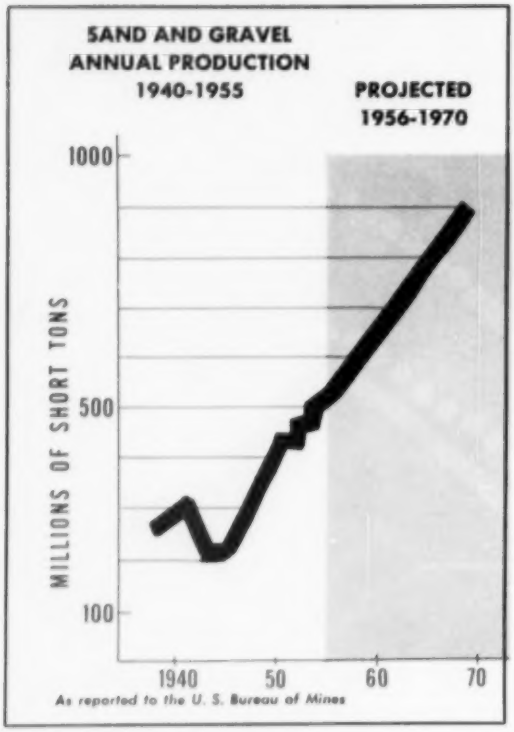
A considered opinion that reflected the thinking of a number of other producers was this one: "Presently we do not expect any change in price per ton. We would anticipate some new competition which, until they become familiar with cost and maintenance, will stabilize the price factor. Later, as per hour wage level increases to some extent, it should reflect an increase in price."

None of the crushed stone producers was concerned about the availability of labor. Some expected to find the labor needed with minimum effort, but most plan to pick up the slack in increased production by increasing efficiency of operation through new and better equipment. One voice of warning was raised by a producer who feels that the industry might suffer in a tight competitive market for labor.

The crushed stone producers also are aware of a number of industry problems, and have quite apparently been doing some good thinking in the direction of solving them. Financing appeared most often among these problems, but others that showed up frequently were zoning and blasting restriction, community relations, difficulty in obtaining new equipment, tough specifications, consulting engineers unfamiliar with the aggregate field, and insufficient inspection of jobs.

Overall, crushed stone producers are feeling pretty good. They're expanding, improving their operations and appear well-equipped to meet whatever demands the growing construction program may put on them.

Returns from the lime industry, although slim, gave information that closely paralleled that provided by crushed stone producers. Every lime plant reporting showed an increase in production for 1957, averaging about 15 percent. Expansion plans



for the next few years are ambitious, with planned production increases reaching 25 percent. New equipment and other improvements in existing plant facilities are expected to add to worker productivity by about 10 percent, with output stepping up on the average from 1.75 tons per man hour to 1.85 in 1957. The outlook is generally optimistic; the plans ambitious.

summary

—Our economy is sound and growing, with construction volume in the forefront. Markets should be strong for rock products industries for some years to come.

—The road building program is slow getting started and probably won't turn out to be an early panacea for all rock products industry ills that it was once thought to be. Demand will increase considerably, for sure, but slowly and in scattered local areas.

—The cement industry is holding its position and taking a good long look at cement demand before making any more expansion plans.

—Sand and gravel producers are going in many different directions. Some are growing, some are retrenching, and some are fighting for their lives in tough local competition attracted by the promise of the highway program gold lode. Ability to supply, though, is not questioned.

—Crushed stone and lime producers continue to expand, slowly, surely and effectively. At the moment, this field probably represents the most optimistic segment of the rock products industries.

—Producers are thinking more and more in terms of technological improvements and are seeking and using means of increasing productivity.

—The industry considers itself capable of meeting new demands thrust on it, is taking a rather dim view of the highway expansion, and may find itself caught short if the economy continues to expand as predicted.

That's the way it looks as 1957 begins—according to an analysis of the returned questionnaires.

Some of the answers to the question asking about industry problems were specific, and they are presented here to give some idea of the various reactions to the future.

Cement people say:

1. "Our greatest concern is in the procurement of materials, particularly structural steel, for our expansion. And we are worried about the situation in the near East. Kruschev may be fighting for his life with his colleagues. If he has the power now to start War III, I think he would not hesitate to start it; to save his hide or to take millions along with him."

2. "The greatest single problem that will be encountered in the future by our company is the training of existing personnel to operate new, larger and more complex equipment now being introduced together with our greater automation and instrumentation."

3. "It is believed that the major problems that any cement company may expect during future expansion programs will be the time required to procure delivery of new equipment and structural steel."

4. "One of the major problems that we anticipate is the shortage of railroad equipment and trucks to move cement from the mills to point of use."

5. "There are questions as to the best type and size in nearly all the equipment we must get. Questions of delivery, too."

6. "Increasingly high costs and slow deliveries."

The sand and gravel people told us:

1. "The greatest problems . . . are the availa-

bility of raw materials in sufficient size and quantity. We plan a very extensive exploration program."

2. "Our major problem in the next few years will be to find means of increasing productivity to offset the expected pressure from labor. We should have no problem in producing the necessary volume for demands in this area."

3. "I think there will be three major stumbling blocks encountered ahead of our industry: (a) shortage of engineering manpower; (b) shortage of cement; and (c) further critical steel situation."

4. "Constantly striving to maintain our high grade specification material, while at the same time balancing sales to our production ratio of the various sizes of material."

And crushed stone producers said:

1. "We do expect that in those localities where a large amount of work will be done that there may be a temporary shortage of materials. We have met this problem by working longer hours. There will in many localities be labor problems."

2. "We feel that the road program . . . is getting underway in a normal manner. There are items other than sand, gravel and crushed stone which will undoubtedly limit the rate of build-up. We are thinking particularly of the steel and cement supply situation. I believe the major problem here as in other parts of the country is procurement of adequate reserves for the future. Our natural resources in some areas are limited. Specifications may have to be changed in the future to compensate for dwindling supplies of raw aggregate."

3. "The (road) program is being held back for lack of enough engineers. We anticipate that the program in our area will be underway within another 12 months on a large scale, with some step-up in the meantime. We have been told that the stone plants in the state will 'have no stockpiles available' after another 12 to 18 months, as they anticipate using the full output of the plants now in operation."

4. "Keeping union wages and working conditions within reason."

5. "We only expect more of the same problems that we have had in the past."

6. "Same problems—pits getting harder to work, specifications getting tougher."

7. "We feel that one of the major problems in increasing our production is going to be the difficulty in obtaining new machinery and equipment particularly in the major items such as crushers, cranes, shovels and vibrating screens."

8. "Zoning restrictions will probably be one big problem in any expansion program. Blasting restrictions may also cause us some trouble in this area."

NEW HIGHWAYS WILL NEED AGGREGATES—MOUNTAINS OF THEM

This is how many thousands of tons the National Crushed Stone Association, Washington, D. C. estimates will be needed in the next three years for the new Federal Highway system—over and above normal requirements!

STATE	1957	1958	1959
Ala.	2488	2900	3209
Ariz.	2662	2884	3218
Ark.	6425	7329	8029
Calif.	9543	11170	12510
Colo.	3644	4095	4507
Conn.	2412	2865	3185
Del.	1536	1879	2125
Fla.	3900	4438	4841
Ga.	4620	5622	6470
Idaho	5533	6276	7031
Ill.	8389	9729	10627
Ind.	3776	4265	4611
Iowa	5194	5353	5836
Kans.	5986	6664	7255
Ky.	5729	6886	7718
La.	3246	3824	4201
Maine	4087	4638	4998
Md.	2314	2636	2851
Mass.	2437	3046	3459
Mich.	6891	8653	7951
Minn.	15596	18414	20768
Miss.	3427	3886	4255
Mo.	5113	5975	6612
Mont.	11863	12919	14280
Nebr.	3107	3214	3334
Nev.	5504	4755	5390
N. H.	2186	2530	2787
N. J.	1902	2343	2645
N. M.	5445	5551	6087
N. Y.	10187	12295	13683
N. C.	10282	12437	13941
N. D.	7856	8614	9363
Ohio	6388	7595	8396
Okla.	4772	5483	6034
Oreg.	3607	3758	4148
Pa.	5849	6896	7568
R. I.	2416	3008	3414
S. C.	2475	3090	3514
S. D.	10833	11821	13126
Tenn.	7627	9003	9988
Tex.	13189	15339	16923
Utah	4426	4123	4563
Vt.	1472	1754	1948
Va.	3906	4657	5173
Wash.	5846	6568	7216
W. Va.	1980	2504	2733
Wis.	9078	10320	10993
Wyo.	3808	4058	4424
Hawaii	420	442	452
D. C.	191	203	230
P. R.	295	303	318
TOTAL	261,858	299,010	328,938

(all forms of aggregates, including sand, gravel, clay gravel, crushed gravel, crushed rock and slags.)

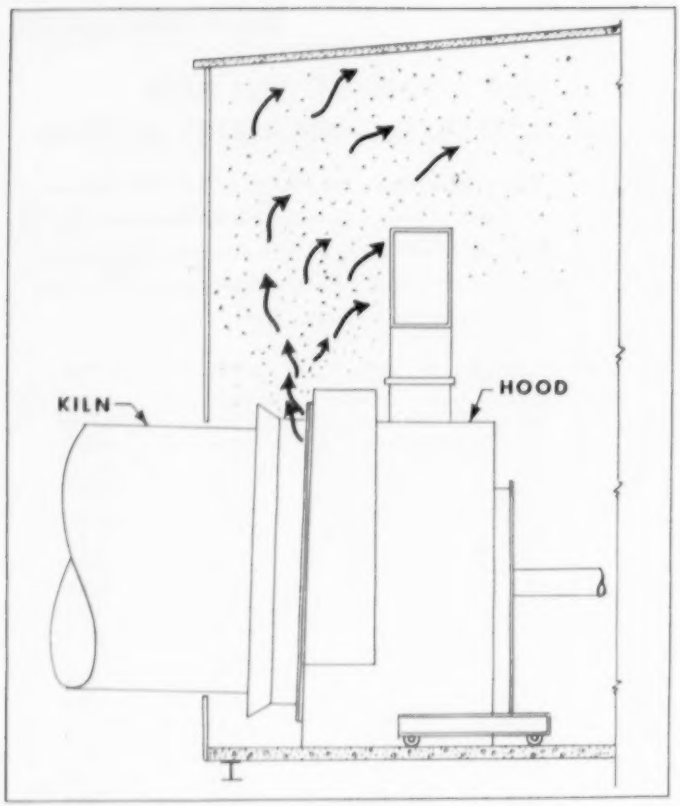
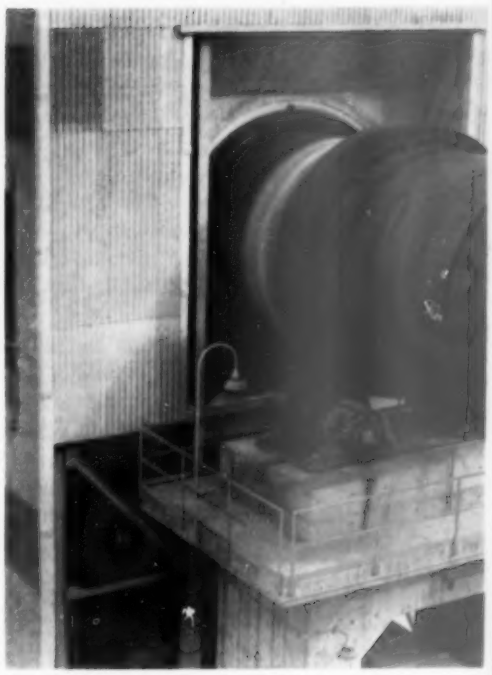


Fig. 1: Dust emission inside **conventional** building



No. 1: Hot air and occasional dust are vented outside burner building

This Design Gets Rid of

It's easy at this Pennsylvania cement plant — it's walled out

By W. R. BENDY*

A BURNER BUILDING that eliminates the nuisance of floor dust from rotary kiln hoods has been put into operation.

The Bessemer Limestone and Cement Co. at Bessemer in Lawrence County, Penn., had the plant designed so that occasional puffs of hot air and dust from the top of the seal ring are directed outside the building instead of inside. This is accomplished by isolating the rotating end of the kiln and the seal ring from the inside of the building by an inner wall that is welded to the kilnhood.

The result is an elimination of an amount of dust which, though not large, is detrimental to control instruments and electrical equipment.

A small negative pressure, of the order of -0.08 in. water gauge, occurs inside the kiln hood. This is necessary to draw preheated secondary air from the cooler into the kiln. At some plants, it is auto-

*W. R. Bendy Cement Engineers.

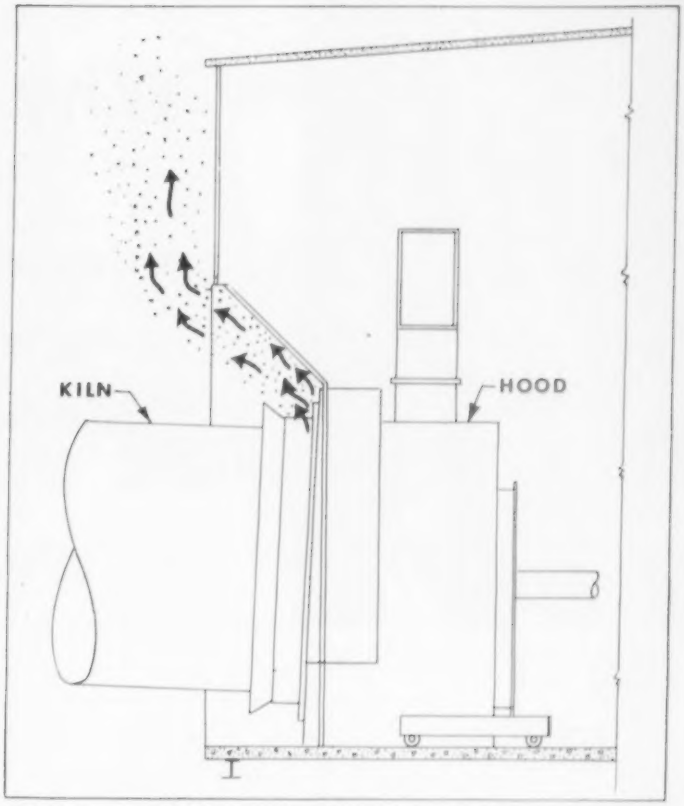


Fig. 2: Dust emission outside building in **improved** design

Dust Nuisance

matically controlled in order to maintain constant combustion conditions. The negative pressure is greatest at the bottom of the hood and least at the top, due to the chimney effect, about as follows:

At top of hood	-0.01 in.
At center	-0.08 in.
At bottom	-0.15 in.

The negative pressure at the top of the hood is so small that pulsations in the flame may cause it to be momentarily positive. Because the seal ring is never completely tight, a small amount of dust laden hot air escapes, either intermittently or continuously. Carried by convection currents, the dust is deposited throughout the building. Many fine installations are marred by this small defect. The effect is illustrated in Fig. 1.

As shown in Fig. 2, the dust is walled out by use of the new building design. The arrangement has been included with complete success in the design of a kiln now operating at Bessemer.

No. 2: Inside view of wall and kiln hood

Over the 13-year period, 41,000 miles of highways will be built in the federal interstate program

Why the Highway

It needs adequate supply of 4 "m's" – money, men, materials and machines

By W. A. RUNDQUIST*

THERE CAN BE NO DOUBT that the gigantic road program will be a boon to the construction industry.

One need but look over the figures on the quantities of aggregates required—crushed stone and gravel—to form a rather rosy picture of what lies ahead for the rock products industry. Everywhere—in association meetings, assemblies and in smaller group discussions—one hears only of the huge quantities of materials required and of the industries' adequacy to meet the demands.

But, the highway program isn't out of the woods yet. There are still obstacles to be overcome.

Fulfillment of a program of any magnitude always hinges on an adequate supply of the 4 "M's"—Money, Men, Materials and Machines. With these in mind, let's examine the picture more closely and make a realistic appraisal based on facts.

First, consider Money:

Congress has made available the money for the federal portion of the program. Allotment of these funds depends on definite arrangements by the states to meet their financial share according to formula. Unfortunately, only about one third of the states can claim that they are now actually in position to commit themselves financially.

This does not involve only construction funds as such. There is also the matter of right-of-way acquisition. To date, only one fourth of the states have found ways and means to help their highway departments with this problem. Right-of-way acquisition remains a bottleneck. It must have greater public and legislative support for solution, just as public enthusiasm and spirit will be required before many states will find the funds with which actual construction can proceed.

Apart from this is the fact—as pointed out by a local banking institution—that credit is tightening, that even heavy machinery loans are not as easy to come by as they have been. This means more "cash on the barrel head" at the time of purchase, and higher rates of interest on the balance.

This can be good or bad, depending upon who is being affected, and may lead to an even greater share of the work to be done by financially sound concerns. The contractor or producer intending to go after a share of the huge program should start now to put his financial position in order.

Next, consider Men:

We hear that the labor force for the program will be adequate, because there will be greater use of mechanization. Bigger and better machinery will be utilized on all phases of the program. Thus, there need be no worry on that score provided the machines are available. The big question then is one of engineers—engineers to lay out the programs, to draw up the plans and to see that execution of the work is up to par. But, everywhere there is the hue and cry that there aren't enough engineers to go 'round! Not enough to take care

*Mr. Rundquist is vice president—sales promotion, Pioneer Engineering Works, Inc.

Program Isn't Out of the Woods

THERE'S A BIG TIME-LAG IN THE "PROGRAM"

1. State legislation for matching funds.

2. Planning and engineering roads.

3. Let contracts for roads.

4. Commitments for materials supply.

5. Ordering producing machinery.

6. Getting equipment.

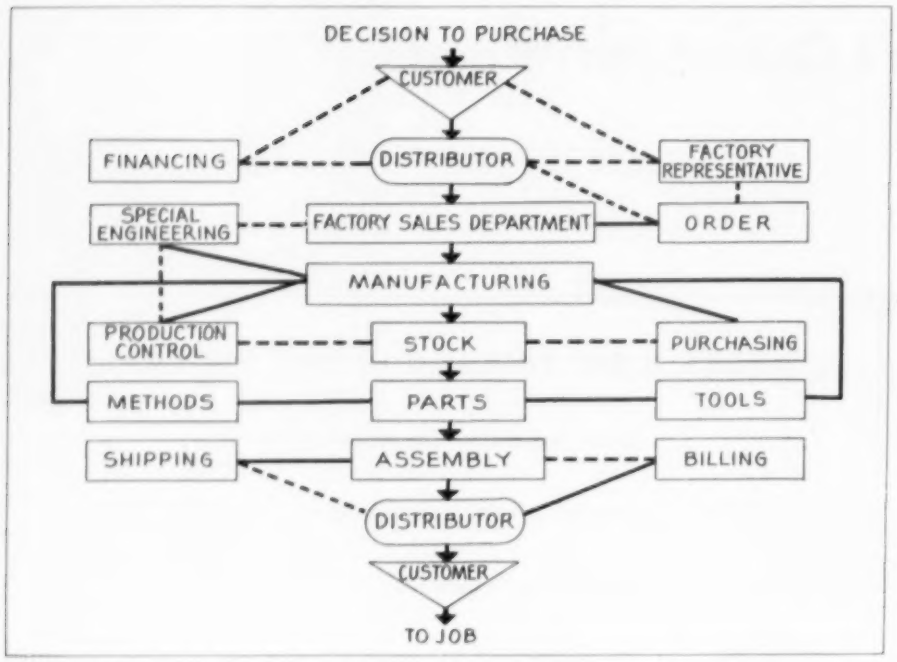
of the needs of the highway departments and—a factor almost completely ignored—not enough to meet machinery manufacturers needs in turning out the equipment with which the increased mechanization will be realized. So, it is safe to say that pitfall number two is the urgent need for more engineers interested in (1) the highway building profession and (2) the design and production of construction machinery.

Then, consider Materials:

Forecasts, as reliable as can be made at this time, give us the yearly totals required in all applicable categories—steel, cement, crushed stone, crushed slag, gravel, bituminous mixes, etc.

Surely, with the increase in capacity that has been added to our steel production over the past few years plus the plans of the steel industry for even greater efforts, steel should cause no big concern. Yet, we learn from reliable sources that structural steel shapes, plates, piling and reinforcing bars—most in demand to meet requirements of the road program—have been and will continue to be in tight supply. According to these same sources, competition from other construction, freight car builders, shipbuilders and others will keep the situation "touch and go". This is in spite of the fact that the steel industry has been operating at better than 100 percent of rated capacity. Although the steel industry has been given the green light by the government, quick action on its requests for fast tax write-offs on $1\frac{1}{2}$ billion worth of expansion is unlikely.

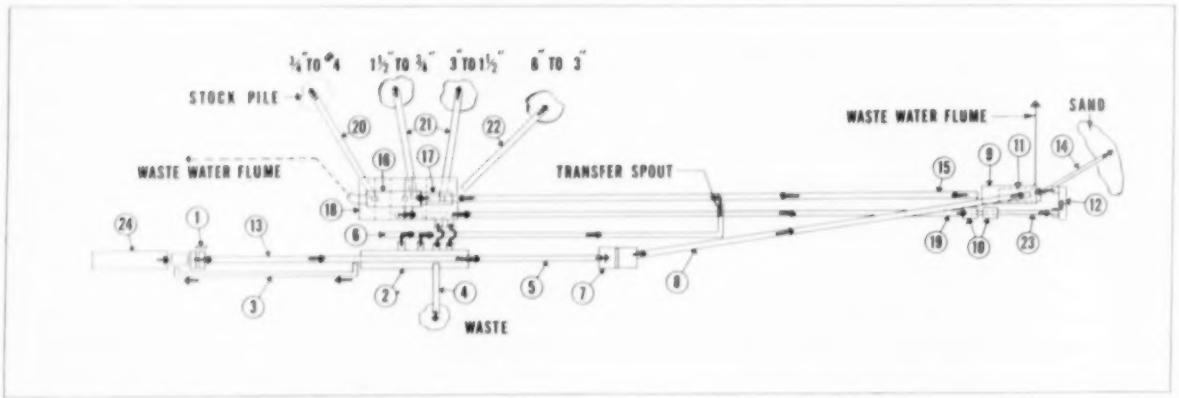
So, what about other materials—crushed stone and gravel, for instance? Can the stone and gravel producers double their output within a few years, as they will have to do to keep the road program on schedule? Yes, you say, provided new crushing plants, washing plants and related machinery is made available by the manufacturers; provided repair and replacement parts can be secured to patch up old plants now being worn out. And, of course, producers of portland cement and the bitumals producers say the same thing.



The machinery order

The machinery

Here's what happens to your equipment order



Here's an example of equipment to be ordered in a plant

INDEX

(1) 30" x 42" JAW CRUSHER
(2) 4' x 20' TANDEM VIBRATOR
(3) 24" x 50' CONVEYOR
(4) 18" x 60' CONVEYOR
(5) 30" x 35' CONVEYOR
(6) 24" x 95' CONVEYOR
(7) 40" x 22" TRIPLE ROLL CRUSHER
(8) 24" x 105' CONVEYOR
(9) 4' x 12' VIBRATOR (4 DECK)
(10) 2—36" x 36" PULVERIZERS
(11) 48" DEHYDRATOR
(12) 1207 BUCKET ELEVATOR
(13) 30" x 75' CONVEYOR
(14) 24" x 70' CONVEYOR (PORTABLE)
(15) 24" x 120' CONVEYOR
(16) 6' DIA. x 16' SCRUBBER
(17) 4' x 24' TANDEM VIBRATOR
(18) 2—20-CU. YD. STORAGE BINS
(19) 18" x 125' CONVEYOR
(20) 18" x 95' CONVEYOR
(21) 2—18" x 80' CONVEYORS
(22) 24" x 95' CONVEYOR
(23) 18" x 25' CONVEYOR
(24) 42" x 14' APRON FEEDER

Typical portable aggregates producing plant which will be used in many areas

Finally, consider machines:

The construction machinery manufacturers are optimistic over the "good business" the road program promises. Yet, they even now are being faced with some awkward problems. Low profits after taxes have made plant expansion difficult and slow for some. Steel shortages will affect others. Those requiring extensive investments in machine tools may have to wait for both the money and the tools until they know better how fast the road program will progress.

More new machines will require more men in the factories, more engineers and designers on the drawing boards. Electric computers are fine, but they cannot do the thinking or the layout to meet ideas as fast as they will develop from the field once the road program gets under way.

Further, no manufacturer can double the capacity of his factory merely by putting up buildings and adding machine tools. Men to run the machines, do the welding, handle assembly, man the stock rooms, etc., are required—and they must be hired and trained. This is not an overnight, nor a weekend procedure.

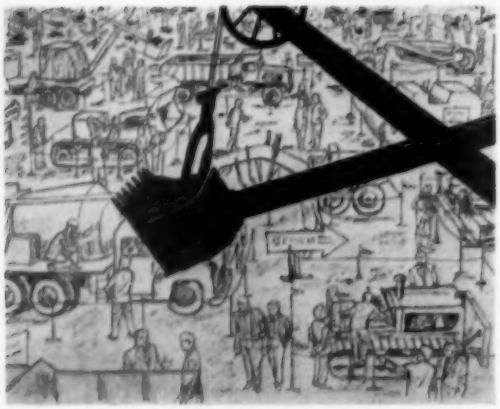
Much of the machinery for road building and construction is of a special nature. What may be satisfactory on one job or at one installation may not be satisfactory, without modification, on another. And in the crushed stone and gravel business, special designs are more often the rule than not. The sand and gravel or rock producer quite often has to wait, perhaps weeks, before a plant set-up can be designed and built to meet his specifications. Even the contractor intending to produce his own gravel or rock with a portable plant may not find what he wants in stock. It costs a considerable sum to build gravel and rock plants for finished inventory. No manufacturer can guess accurately what type of plant or combination of plants to build for fast delivery, unless he has tangible advance notice of what will be required. Advance orders are the best evidence of what should be built.

To design and build a crushing plant is not as simple as one might suppose. Let's outline how a consideration to purchase by a producer is translated into a delivered plant.

First, there is the distributor. His salesman and the prospective buyer get together to talk over the kind and type of plant for the job. Before a decision is reached, it may be necessary to call in a factory representative or engineer to go over specific details. Then, negotiations involving financial arrangements and other terms must be completed.

The order then is entered by the distributor with the factory. Reaching the factory, the order must be acknowledged and recorded. The order must be relayed from the sales department to the manufacturer's engineering department for check-

Please turn to page 152



At the show. Artist's conception of machines on display.

Productivity On Parade

New A.R.B.A. Road Show Attention on Equipment

The 1957 ARBA Road Show, staged again after a nine-year recess, will focus attention once more on the vital role that equipment plays in roadbuilding.

There have been impressive developments in machinery since 1948, and the brand new models that 250 manufacturers will exhibit at the coming exposition will indicate how quickly productivity is being boosted. Thanks to just such progress, roadbuilding costs have been kept in line and the American people have been provided with good roads at a price they can afford.

Mechanization of the roadbuilding industry, more than any other factor, is responsible for America's vast network of modern highways. As an editor of a popular businessmen's magazine put it:

"The men who make equipment have mounted a new attack on costs. Their weapons: Highly mechanized, high-capacity machines. Their aim: To move a maximum amount of material in a minimum amount of time with a minimum of manual labor."

The steady rise in labor costs through the years has caused a demand for more productive machines. Manufacturers have responded by designing equipment with more capacity, greater speed and versatility. For example, here's how the horsepower of tractors has been boosted to offset increased labor costs: In 1935, operator's wages were $1.09 per hour and tractor horsepower was about 95. By 1941, wages were up to $1.50 per hour and horsepower was boosted by 113. By 1948, wages had gone to $2.25 per hour; tractor horsepower to 130. Then, by 1955, wages had increased to $3.25 per hour and tractor horsepower was upped to 230.

Two years ago, a group of cost experts in the Federal Bureau of Public Roads sat down to compare 1953 costs with those of 1923. They found that if the same machinery and methods employed in 1923 were used today, highway costs of $1.00 today would top $1.90 instead. Economy and efficiency of modern equipment makes the difference —and the public reaps the benefit.

Big projects are impossible today without such machines. Take the Massachusetts Turnpike, for example. To create this 123-mile superhighway, it was necessary to gouge through ranges of rock-solid hills, shifting, in the process, nearly 40 million cu. yd. of earth. To pave the turnpike, it required a million tons of bituminous concrete, 1.7

Focuses in 1957

In the pits. Portable crushing plants have proved to be a boon to industry

million tons of crushed stone, 6 million cu. yd. of gravel, 600,000 cu. yd. of concrete and 60,000 tons of steel.

A gigantic fleet of powerful machines was thrown into this job to finish within a few short months a project that, without modern equipment, would have taken a decade to complete.

The development of untiring aggregate plants, fast pavers and automatic batching plants has been just as dramatic.

Who would have imagined, 20 years ago, that a 236-mile-long highway, four lanes wide, could be paved in one construction season! Except for a seven-mile section poured last Fall, that is what was accomplished on the Kansas Turnpike. Sixteen paving contractors "ganged up" on this job to complete it within six months. The heart of their operation, observers report, was an emphasis on assembly line methods.

On the asphaltic concrete section, one contractor ran three pavers almost side by side, in tandem, to lay three 8-ft. widths at once. With this system, he could surface almost a mile of turnpike a day.

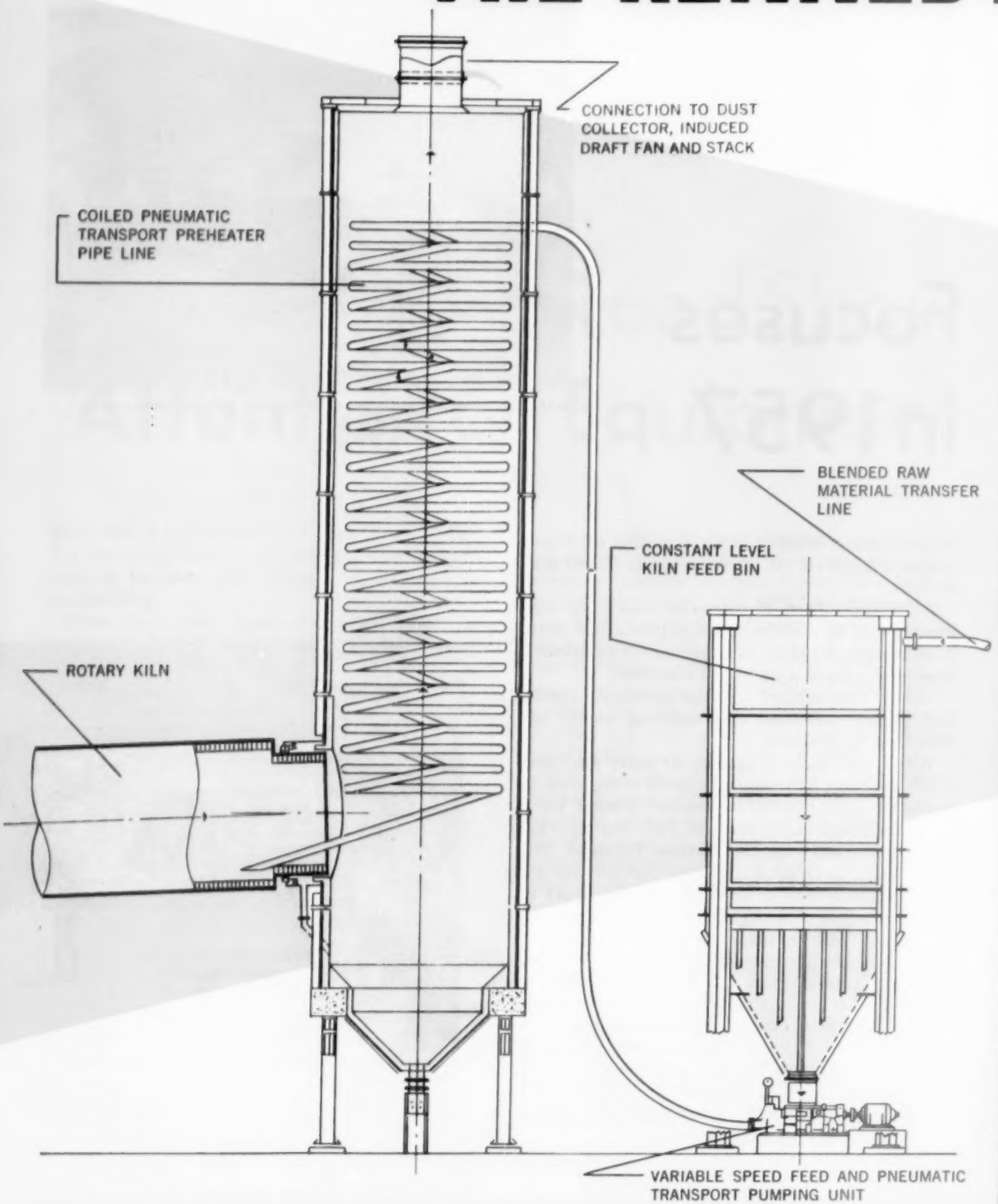
On the portland cement concrete section, another contractor paired off two huge pavers, outside the forms, to complete one-half mile of road a day.

Please turn to page 92

On the roads. Two mixers pour half-mile of portland cement concrete a day

A Sensational Advance in

THE KENNEDY



he Manufacture of Cement!

GRUDEX PREHEATER

MANUFACTURED EXCLUSIVELY BY KENNEDY-VAN SAUN

Produces Highest Grade Cement at Greatly Reduced Cost...

WHAT IT IS **A simple heat resisting coiled pneumatic transport system in a housing at the feed end of the kiln in which the dry fluidized raw material is preheated up to 1300°-1400° F. before entering the kiln.**

WHAT IT DOES **On short, dry process kilns, it reduces fuel consumption by as much as 40%, and increases output by as much as 40%!**

See It in Operation at Coplay Cement Mfg. Company, Coplay, Pa.

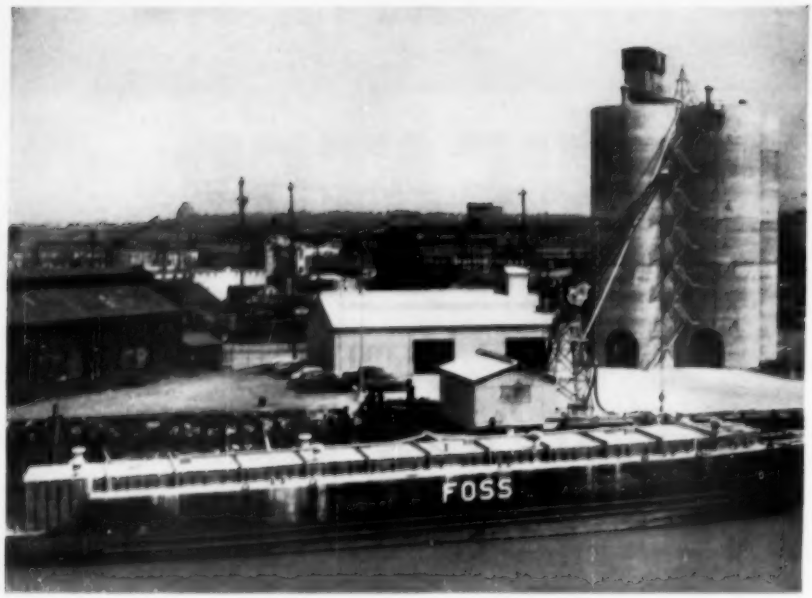
OUTSTANDING ADVANTAGES

1. **WIDE RANGE OF APPLICATION:** Can be used with any short dry process Portland Cement kiln. **No nodulizer required.**
2. **REQUIRES MINIMUM SPACE:** The Kennedy Grudex requires no more ground space than a conventional dust chamber, and can be installed on existing kilns.
3. **MINIMUM SUPPORTING STRUCTURE:** The unit requires no elaborate supporting structure. The kiln feed tank may be on the ground.
4. **LOW COST:** The Kennedy Grudex equipment costs far less than any other external type. It is simple to install and the cost is only about one-half of the cost of any other external type.
5. **ALKALI TROUBLE FREE:** As the raw material does not contact the kiln gases until entering the kiln in the conventional manner, the Kennedy Grudex System is free of the high alkali troubles of all other external types.
6. **NO DUST PROBLEM:** As the raw material is deposited in the kiln in the conventional manner there is no raw dust problem. As the raw material may be ground coarser, the dust loss is lower.
7. **LOW LABOR COST:** Only one man, one shift per day is required to lance the dust from the outside of the coils.
8. **LOW POWER COST:** The only power needed is for the transport pump and compressed air. Grinding power is saved as the raw material need be ground to only 80-82% through the 200 mesh screen. No feed screw is required.
9. **LOW MAINTENANCE:** Maintenance is low because there are no moving parts exposed to heat. The lower section of the transport pipe line lasts 10 years and the balance at least 20 years.
10. **OPERATIONAL DIFFICULTIES ELIMINATED:** With dual transport pumps, availability is 90-95%. The Kennedy Grudex introduces no new operational problems.

KENNEDY-VAN SAUN

MANUFACTURING & ENGINEERING CORPORATION

TWO PARK AVENUE, NEW YORK 16, N.Y. • FACTORY, DANVILLE, PA.



Cement storage and distributing station. The 6500 barrel capacity barge tied up at pier with conveying line from barge to silos clearly visible.

Bulk-truck loading with F-H Airslide having two discharge points for loading to two hatches of truck.

"Olympic" speeds marketing

Like hundreds of cement and other chemical-processing plants, Olympic Portland Cement Company, Ltd. of Seattle, Washington found it convenient and profitable to apply Fuller conveying equipment to the operation of its cement distributing station at Harbor Island, Seattle.

Cement is loaded into a barge of 6,500 barrels capacity at Olympic's Bellingham, Washington cement plant by F-H Airslide® fluidizing conveyors and Fuller-Kinyon Pump. The barge is transported to the distributing station at Harbor Island, a distance of approximately 95 miles, taking advantage of low water transportation rates. Upon arrival at destination the barge is unloaded by a Fuller-Kinyon Type D remote-control unloader, which conveys the cement 350 feet to any one of four storage bins on shore in approximately 18 hours, averaging about 360 barrels an hour. Silos have a capacity of 10,000 barrels each.

One of two control stations, including Fuller control panel with running-light equipped flow diagram and dial scales for individual axle loading.

Bag packing. Overhead is a 1200 cu. ft. per hour Airslide which delivers cement to an elevator serving the packer.

Fuller-Kinyon Remote-Control Unloader in hold of barge; cargo is conveyed to any one of four silos on shore, a distance of approximately 350 feet.

...lowers distribution costs with Fuller-Kinyon Pumps and F-H Airslides

Handling of cement in the distributing station is accomplished in a most ingenious and efficient manner by the use of F-H Airslides, conveying from any one of four silos to two truck-loading stations and a bag packing machine. Controls, as installed, make truck loading automatic, at a rate of 500 barrels an hour, insuring each end of the truck being loaded simultaneously to the accurate final weight. A truck, with a capacity of 120 barrels, can be loaded in 10 to 15 minutes.

Air for conveying by the Fuller-Kinyon Unloader from barge to silos, is supplied by a Fuller Rotary Single-stage Compressor, with a capacity of 1647 c.f.m. at 30-lb. pressure. A Fuller Rotary two-stage machine with a capacity of 281 c.f.m., 100-lb. pressure, is also installed to supply air for general plant use.

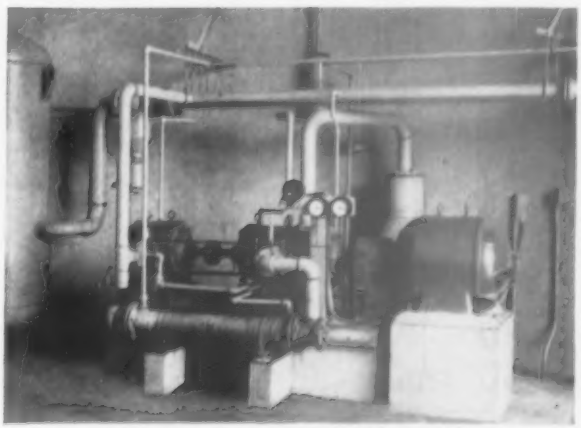
Bulletin G-4, illustrating and describing this most modern and efficient installation is yours for the asking. Write for it today.

Overall view of loading station. One of two stations, showing operating-control deck and double Airslide serving two silos. Each Airslide has two discharge points which converge from two neighboring Airslides so that only one pair of loading hoses is necessary for each station.

G-145T
4006

SEE US AT THE
Concrete Industries Exposition
KIEL AUDITORIUM, ST. Louis, Mo.
BOOTH 81 & 82 FEB. 25-28

FULLER COMPANY
102 Bridge St., Catasauqua, Pa.
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
Chicago · San Francisco · Los Angeles · Seattle · Kansas City · Birmingham



Fuller Rotary Two-stage Compressor, supplying general plant air. Capacity 281 c.f.m., 100-lb. pressure. A Fuller Rotary Single-stage Compressor, capacity 1647 c.f.m., 30-lb. pressure, is also installed for supplying air for the Fuller-Kinyon Unloader.

Enter 1427 on Reader Card

It included a 4-in. base, 1-in. sand leveling course, and 10-in. slab, 24 ft. wide.

The economics of building with modern equipment has made it possible for engineers to design not only larger, but safer roads. Today, they can make deep cuts where a few years ago they would have had to build a by-pass.

Engineers no longer go over or around an obstacle in sharp, dangerous curves, but through it. Roads can be built wider, with adequate shoulders and approach lanes. With today's machines, it is not necessary to sacrifice safety for economy.

The timing of the 1957 Road Show could hardly be more perfect to meet this high interest in equipment. Contractors, officials from city, county and state highway departments, and materials producers are vitally interested in the new machines scheduled for display in Chicago's grand International Amphitheater. The tentative program for the convention is listed below.

A.R.B.A. Convention Program and Road Show

All sessions and committee meetings open to non-members and foreign visitors

Monday, Jan. 28

10:00 a.m. — Ceremonies officially opening 55th Annual Convention
Addresses by national highway leaders

1:30 p.m.—Technical Session
Panel on Design of Rigid Type Pavements
Paper: "Use of Slip Form Paver in Construction of Rigid Type Pavements"

2:00 p.m — A.R.B.A. Resolutions Committee
Pan American Division Meeting

3:30 p.m.—Committees:
Express Highways
Highway Illumination
Steel in Pavements
Sodium Chloride for Soil Stabilization

7:00 p.m.—Old Timers Reunion

Tuesday, Jan. 29

10:00 a.m. — Second General Session —Addresses:
By prominent Member of Congress: "Federal Financing of the Road Program"
By nationally-known banker: "The Part the Bankers Will Play"
By an authority: "State Financing of the Road Program"

11:45 to 12:00 Noon: Two addresses by Members of Congress "Projecting the Road Program Beyond 1959"

1:30 p.m.—Technical Session on Soil Stabilization
Papers: "The Importance of Stabilized Soil Base for Pavement Construction"
"The Use of Cement for Stabilization of Soils"
"The Use of Asphalt for Stabilization of Soils"
"The Use of Calcium Chloride for Stabilization of Soils"
"The Use of Tar for Stabilization of Soils"
"The Use of Sodium Chloride for Stabilization of Soils"
"The Use of Emulsified Asphalt for Stabilization of Soils"

2:00 p.m. — Materials and Supplies Division Meeting
Educational Division Meeting
Contractors Division Meeting

3:30 p.m. — Committee on Photogrammetry
Paper: "Tentative Specifications for Advertising"
Committees:
Railway and Highway Grade Separations
Calcium Chloride Soil Stabilization
Construction Practice Education

Wednesday, Jan. 30

10:00 a.m.—Third General Session
Address by a Federal official: "Engineering the Accelerated Road Program"
Panel: "Speeding up Highway Engineering"
Papers:
"Building Roads with Modern Engineering Methods"
"Photogrammetry and Electronic Computers in Highway Design"
"Accepting Pay Quantities Electronically Computed"
"Potential Future Use of Photogrammetry in Highway Engineering"
"Keeping Highway Engineering Education Abreast of Modern Techniques"

1:30 p.m.—Papers:
"Traffic Problems to be Considered on our National Highway Program"
"Report on AASHO Illinois Test Road"
"Highway Illumination for Safety and Increase of Road Carrying Capacity"
"Economic Maintenance of Roadsides"

2:00 p.m.—Municipal and Airport Division Meeting

3:30 p.m.—Committees:
Cement-Soil Stabilization
Formed Steel Bridge Floors
Traffic Control Devices
Winter Maintenance of Roads

Thursday, Jan. 31

10:00 a.m. — Annual Business Meeting of A.R.B.A. Members
Reports of Committees
Report of A.R.B.A. Resolutions Committee
Installation of Officers—Directors

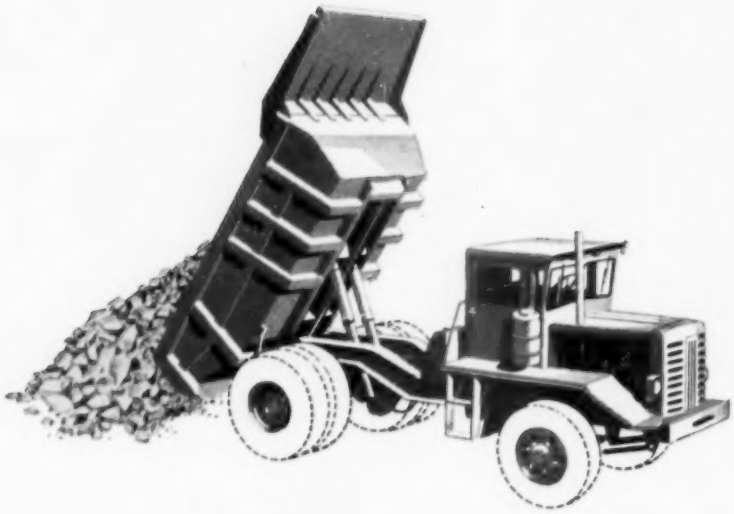
1:30 p.m.—Technical Session
Papers:
"Bituminous Construction for Heavy Duty Pavements"
"Winter Maintenance of Highways"
"Economic Value of Steel in Pavements"

3:30 p.m.—Committees:
Asphalt-Soil Stabilization
Roadside Construction & Maintenance
Federal-Aid Relationships Between States, Counties, Cities

8:00 p.m.—Road Builder's Banquet

Friday, Feb. 1

2:00 p.m.—County and Local Roads Division Meeting
Sub-Committee on Equipment, Committee on Roadside Construction & Maintenance
Committee on Research and and Graduate Work in Highway Engineering
Committee on Visual Aids
Committee on Student Chapters



Which tires would you put on this truck?

SITUATION: Excavating for highway between Bonne Terre and Halifax, Missouri, Clarkson Construction Co. trucks haul dolomite from 1,000-ft. long, 20-ft. deep cut to nearby fill. Terrain—rough, with steep 30° downgrade. Average load of 23.49 cu. yds. weighs 61,074 lbs.

FIRESTONE'S RECOMMENDATION: Rock Grip Excavators for dual drives withstand load shocks, ward off cuts and bruises. Angled treads prevent side slipping. Rib Excavators up front make steering easier. These tires are built with tough cut-resistant tread rubber and Safety Tensioned *Gum-Dipped*® nylon cord bodies for extra strength and impact resistance.

JOB RESULTS: Clarkson trucks operate 10 hrs. daily in 5-min. cycles. *No downtime has been caused by tire failures!* Operators express complete satisfaction with lowered costs and raised performance standards, directly resulting from the recommendations of their Firestone Sales Engineer. He's the man who knows all tires and understands how to use them best for your profit, too. Contact him today—through your local Firestone Dealer or Store.

SUPER TRANSPORT

Most widely used heavy-duty tire for long, low-cost highway performance.

SUPER ALL TRACTION

Rugged, deep treads for off-road traction; smooth highway operation.

ROCK GRIP EXCAVATOR

Toughest tire ever built for severe off-road service. It's cut-resistant too!

RIB EXCAVATOR

Rugged, thick-bodied tire with great lateral stability for easy steering action.

Firestone

Enjoy the Voice of Firestone on radio or television every Monday evening over ABC

Enter 1446 on Reader Card

HERE'S THE EXCLUSIVE

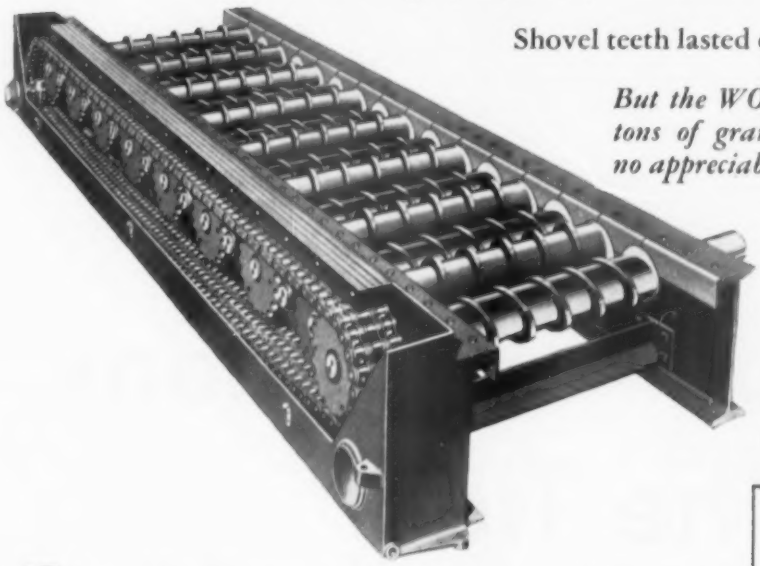
PETTIBONE UNIVERSAL WOBBLER

the most advanced idea in existence for separating fines from oversize!

Leading construction publications are currently reporting the WOBBLER as a "contract saver" on the Montgomery Dam project, Alma, Colorado.

Shovel teeth lasted only two 10-hour shifts—

But the WOBBLER handled 325,000 tons of granite in four months with no appreciable wear—no breakdowns!



ROAD SHOW FEATURE
Jan. 28 — Feb. 2

MAKE THE
UNIVERSAL WOBBLER
a "must see" item at the Road Show and learn how you can use it to increase your primary crusher capacity from

50 to 100%

Write for literature showing complete range of Wobbler Feeder sizes.

See the UNIVERSAL WOBBLER at Pettibone-Mulliken Booth No. 813 in Donovan Hall, International Amphitheatre, Chicago.

See the NEWEST PRODUCT COMBINATION FOR HANDLING AGGREGATES EVER AVAILABLE TO THE ROAD BUILDER AND CONTRACTOR — The UNIVERSAL WOBBLER, combined with a UNIVERSAL IMPACT MASTER.

The Wobbler, in this combination is now at work for Grannas Bros., Altoona, Pennsylvania.

PETTIBONE UNIVERSAL
In Cedar Rapids Since 1906

UNIVERSAL ENGINEERING CORPORATION
617 C Avenue, N.W., Cedar Rapids, Iowa
Subsidiary of Pettibone Mulliken Corporation, 4700 W. Division Street, Chicago 51, Illinois
Enter 1485 on Reader Card

Reduced overhead. Company bought Crystal mine and mill, and combined operations

Minerva's Crystal Fluorspar Operations "Buck the Tide"

By GEORGE SCHENCK

WHO WOULD WANT to be expanding domestic fluorspar production at a time when foreign fluorspar of all grades was glutting the world market, at prices made possible by the use of cheap foreign labor, and where little tariff protection is offered domestic producers?

The fluorspar division of the Minerva Oil Co. decided that the time to expand was when other operators were giving up if one had an abiding belief in the bright future of fluorine chemicals and other products of fluorspar, which it did. The secret of survival at such a time: mechanization of underground mining, modernization and centralization of milling, and the pushing of a strong research, engineering and exploration program.

Starting in 1944, Minerva steadily became a larger and larger factor in the fluorspar picture. It found large reserves and gathered together know-how and staff under the leadership of the late J. H. Steinmesch. Growth continued under the present vice-president and general manager, Gill Montgomery, at its Minerva No. 1 mine and mill near Cave in Rock, Ill., site of one of the nation's longest fluorspar ore-bodies.

In 1952, as fluorspar economics declined, Minerva bought out Yingling mining interests, with large land holdings in Hardin County, Ill. Then, it acquired the mill and mines of the Crystal Fluorspar Co. near Elizabethtown, Ill. Durward C. Spees was given the job of rebuilding and modernizing the mill into a plant flexible enough to

Please turn to page 98

400 HOLES OF 12′ - 18′ DEPTH, PER 8-HOUR SHIFT, IN HARD MISSOURI LIMESTONE, ON 36 GALLONS OF FUEL

This is average day's work of this Jaeger "600" Rotary Compressor and two 4″ drifters, in Federal Materials Company's underground quarry at Cape Girardeau, Missouri. A. W. Zimmer, Jr., Secretary-Treasurer and Manager, reports: "We are more than 100% satisfied with the performance of the Jaeger rotary compressor. Efficiency and fuel economy are remarkable and, except for regular filter changes, maintenance expense has been zero."

Jaeger 600 Rotary ...*brings new efficiency to drilling*

A Jaeger "600" rotary produces the same 600 cfm of air as other "600" compressors, *using the same 6-71 GM diesel engine at 100 to 150 rpm slower speed (1650 rpm instead of 1750 or 1800).*

This explains why Federal Materials Company can keep two 4″ drifters drilling 8 hours in hard rock on only 36 gallons of fuel. You use less fuel, subject your engine to less wear, and turn your compressor as many as 9000 fewer revolutions every hour you work.

Smaller Jaeger Roto Air Plus® units have the same low speed, high efficiency performance. It will pay you to get full details or demonstration from your Jaeger distributor —or let us mail you Catalog JCR-5.

CRAWLER AND BOOM MOUNTINGS for both 4″ drifters was designed by Federal Materials Co. to fit their particular needs.

50th year JAEGER CONSTRUCTION EQUIPMENT

THE JAEGER MACHINE COMPANY

603 Dublin Avenue, Columbus 16, Ohio

PUMPS • CONCRETE MIXERS • SPREADERS • FINISHERS • TRUCK MIXERS

Enter 1431 on Reader Card

Added facilities. Two new flotation circuits were put in Crystal mill

Stressed engineering. Developed washing well to clean particles better

handle any kind of ore in the Illinois-Kentucky district. At the same time obsolete mining systems, tied to drifter drilling, locomotive-and-car haulage and shallow shaft hoisting, were changed slowly to more modern, low-cost methods. The adjacent Victory mine was bought in 1955 and other small properties were leased. These also were given a modernization treatment and developed to provide the expanded Crystal mill with the larger feed rate of 800 tons per day. I. V. Robertson, Reynard Dutton, D. B. Holbrook and J. J. Daly have helped revitalize these old properties.

The Crystal group operation is successful because of one important fact at present: It has proved that money can be made out of 20 percent fluorspar ore, whereas recognized experts heretofore always considered 35 percent CaF_2 the economic grade cut-off. This article describes the Crystal area milling and mining operation.

The Illinois-Kentucky fluorspar district is the source of more than 50 percent of U. S. fluorspar. District deposits are of three types. The earliest worked were fissure veins that have been so productive in the Rosiclare, Ill. area. In these veins, fluorite exists as fissure fillings. As much as 45 percent of the ore may be CaF_2. A few residual deposits in which gangue has been weathered away to leave clay and spar are located at the outcroppings.

Bedded replacement deposits characterize Cave in Rock district in eastern Hardin County, Ill. Crystal mine is located in this mining district. Ore occurs here as flat lying deposits in limestone, chiefly in beds of the Fredonia member of the Ste. Genevieve formation and in the upper part of the Renault formations, of Mississippian Age.

Elongate ore bodies are typical. They follow a controlling fracture of 2000 ft. or more, and are 50- to 150-ft. wide and 5- to 15-ft. thick. Ore in these deposits may be 30 percent fluorite, with sphalerite (ZnS) and galena (PbS) intermixed in varying quantities.

Exploration in the Illinois fluorspar district is limited to a geologically favorable area of about 280 sq. mi. The Cave in Rock mineralized belt follows the course of groups of joint-like fractures and minor faults that trend N 45 E and N 60 W.

Diamond core drilling, laid out by a geologist familiar with local faulting and fissuring, has proven the most valuable prospecting method in recent years. A drilling pattern usually calls for holes on 150- to 200-ft. centers parallel to fracturing, and on 25- to 50-ft. centers normal to fracturing. This pattern is dictated by the relative narrowness of the ore bodies. Geophysical and geochemical prospecting have been used with limited effect. Donald W. Saxby, geologist, is in charge of all prospecting operations.

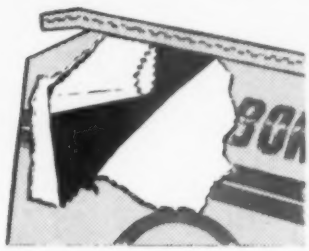
B. W. Bales, a drilling contractor, is drilling 200- to 300-ft. horizontal holes with a Chicago Pneumatic model 55 drill using AX bits. The holes are collared in the Renault or Fredonia formations and driven in such a manner as to keep within 10 ft. of the overlying sandstones.

Breast stoping, locally called room-and-pillar mining, is used at Crystal and Victory mines and generally throughout the Cave in Rock mining district. Minerva finds that this system provides the flexibility necessary in mining its irregular ore bodies. Cut-off, the grade below which it is un-

Please turn to page 100

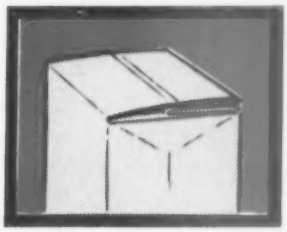
New Developments at A&S

THE TILTED VALVE BAG



This new closure was developed by one of our customers to prevent sifting of fine materials, and is now offered on standard A & S bags without upcharge. The Tilted Valve is a must for the fertilizer and rock products industries, which have long been seeking a multiwall bag combining an automatic closure with a positive, sift-proof seal.

THE ARKTITE BAG

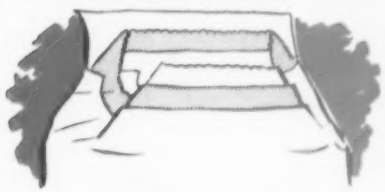


The new A & S Arktite Bag is not only sift-proof and tamper-proof, but also capable of standing upright on packing lines and shelves. It has thermoplastic seals throughout and liners of paper, film or foil.

THE ZIP-TOP MULTIWALL BAG

Already a favorite with multiwall users from coast to coast, the A & S Zip-Top is typical of the trend-setting features you find on our bags. This new easy-opening construction is available on any A & S multiwall at no extra cost.

THE STEP-FLEX BAG



A new multiwall bag soon to go into production. It is triple-sealed top *and* bottom with the unique Step-Flex closure, forming a sift-proof barrier against product loss or contamination. This new closure provides three multiwall layers, staggered and pressure-glued both ways in overlapping fashion.

OTHER POPULAR A & S BAGS

SUPER-RUFF— non-slip bags
LAMO-PAK— moisture barrier bags
LOCK-RITE— sealed valves
DUK-PAK— sheds water

To get the whole A & S bag story — particularly as it applies to your own products — we suggest that you write directly to Arkell & Smiths, Packaging Division, Canajoharie, New York.

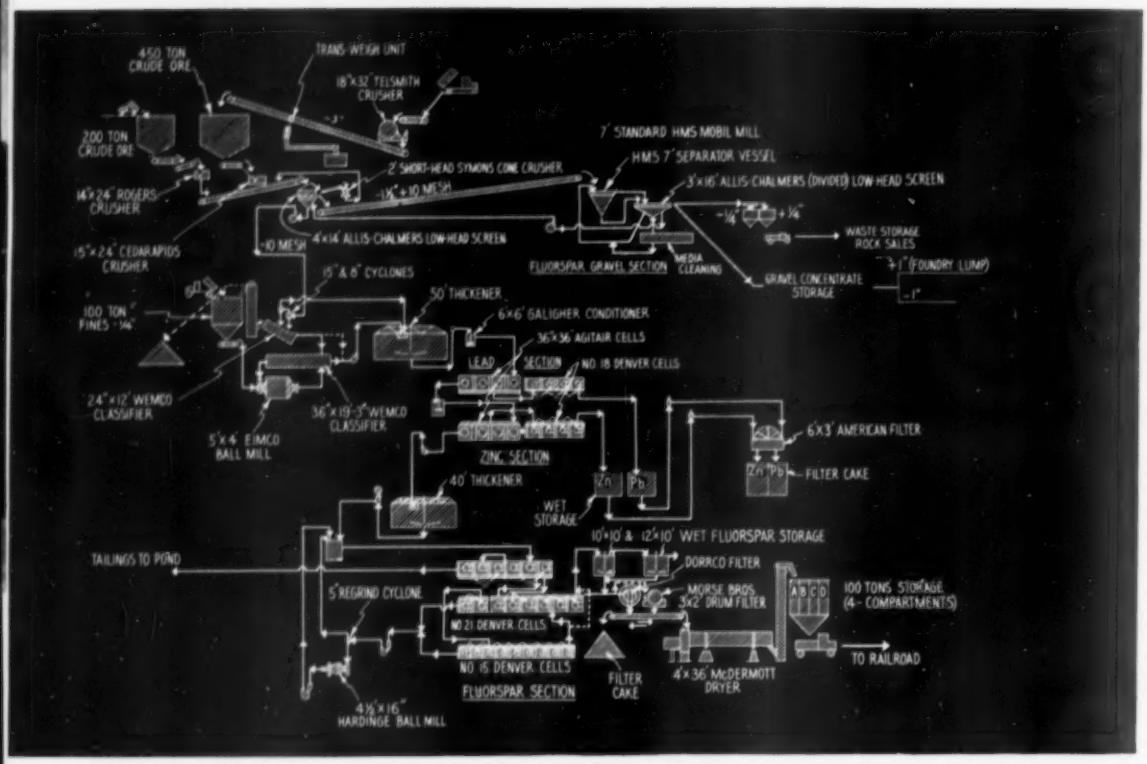
ARKELL AND SMITHS

Executive Offices: 500 Fifth Ave., New York 36

Manufacturing Plants at:
Canajoharie, N. Y. • Wellsburg, W. Va.
Mobile, Ala. • Hudson Falls, N. Y.

"The Oldest Name in Paper Bags"

Enter 1449 on Reader Card



Flow diagram of Crystal mill shows improved processing-plant facilities

profitable to mine ore, is set at 20 percent. J. J. Daly, mining engineer, said that visual inspection of the face provides ore grade information that will be within two or three percent of the mill results. Faces are worked irregularly, to give a fairly uniform feed to the mill. The mine produces on a 2-shift, five-day-a-week schedule. Maintenance work is done on Saturday.

Pillars are left as needed, usually on about 25-ft. centers. Estimated recovery is 70 percent. It is expected to reach 95 percent when pillars are robbed.

A 35-hole drilling round with a 5-hole burn cut is used at working faces. Hole depth is seven ft. Due to the shattered condition of the ore, a cavity is sometimes used to provide an extra free face for blasting. Jacklegs are preferred for drilling, but a rubber-tired jumbo is used on high faces. This unit is built around a Joy hydraulic boom. All production drilling is done with 1¾-in. throw-away bits.

Each round is charged with 40-percent nitrostarch dynamite. Non-electric caps and fuse are used to fire rounds. A planned research program will investigate use of stemming and electric delay caps to increase breakage, decrease powder use.

Expansion-type roof bolts are used in working areas where the sandstone roof has shown a tendency to spall. Crystal mine favors this type of roof bolt because it can be set quickly. Bolts are usually set on 5-ft. centers. Bolt holes are drilled with stopers.

Slushing ramps are used to load an average of 220 tons of broken rock from each round. The slusher hoist is a 3-drum 20- or 25-hp. electric Ingersoll-Rand unit that powers a 42-in. Pacific slushing scraper.

The loading cycle starts when the crawler-mounted slusher is trammed to the loading area. Pins are secured on either side of the face to support snatch blocks through which the slusher-bucket tag lines work. The latter pull the bucket to the face. The main cable retrieves the bucket in the loading operation. Bucket loads are discharged into trucks through a slotted ramp.

Crystal mine uses standard highway-type end-dump trucks for haulage from the mines through adit openings. Trucks have Hercules 4-cylinder type DOOD diesel engines. A scrubber is provided to treat exhaust gases. Trucks haul five to six tons of ore from the slushing ramp to the primary crusher at the mill on the surface.

The Defender Mine has been leased to provide adit access for trucks to the recently purchased Victory properties. It is felt that the operating economies inherent in truck haulage will make mining of the Victory "A" and "B" areas profitable.

Please turn to page 102

Underground, slushing ramps load 220 tons each round; (1) track-mounted slushing ramp, and (2) slusher bucket

At present, Victory "A" is being developed through a former shaft serving old works. Victory "B" area is being mined from Crystal mine. Victory "C", reached by adit from old Defender workings, is the central and western portion of the mine.

The former system of hoisting 1-ton end-dump mine cars to the surface was too slow and expensive for moving waste and ore. Now, rock and ore are carried by truck to underground storage bins. An air-powered larry car is loaded from the bins and is trammed 50 ft. to the shaft where its 1½-ton load is dumped into a waiting skip. Mr. Daly developed the larry car from an old Sullivan track-mounted overcast unit. An unusual feature of its operation is a pulley arrangement that keeps the hose, which provides air to operate the larry car, off the ground. This system has boosted shaft capacity by 400 percent.

Mining costs are shown in Table I. Since selective mining is used and the roof must be supported, the cost per ton shown compares favorably with industry averages.

Table I. Production and Development Costs*

	$/Ton
Drilling and blasting	0.680
Loading	0.298
Haulage	0.406
Roof support	0.131
Machine maintenance	0.112
Direct supervision	0.134
Pumping	0.041
Total cost per ton	1.802

*Exclusive of depletion and depreciation

A new mill circuit for recovering zinc and lead has just been added at Crystal mill. Mill feed to the 800-t.p.d. plant may run more than 80 percent waste. This dilution called for a different ore dressing technique than the jig-and-table method, which was usual in the region and used formerly at this location. Heavy media combined with froth flotation gives the plant flexibility to deal with a rapidly changing feed and to produce varying amounts of several products. (See Table II)

Table II. Products of Crystal Mine and Mill

Fluorspar		Other
Acid grade	97 + % CaF_2	Road rock
Ceramic #1	95 + % CaF_2	Zinc conc.—ZnS
Ceramic (special)	92 + % CaF_2	Lead conc.—PbS
Ceramic #2	85 + % CaF_2	
Gravel	60 or 70 + % CaF_2	

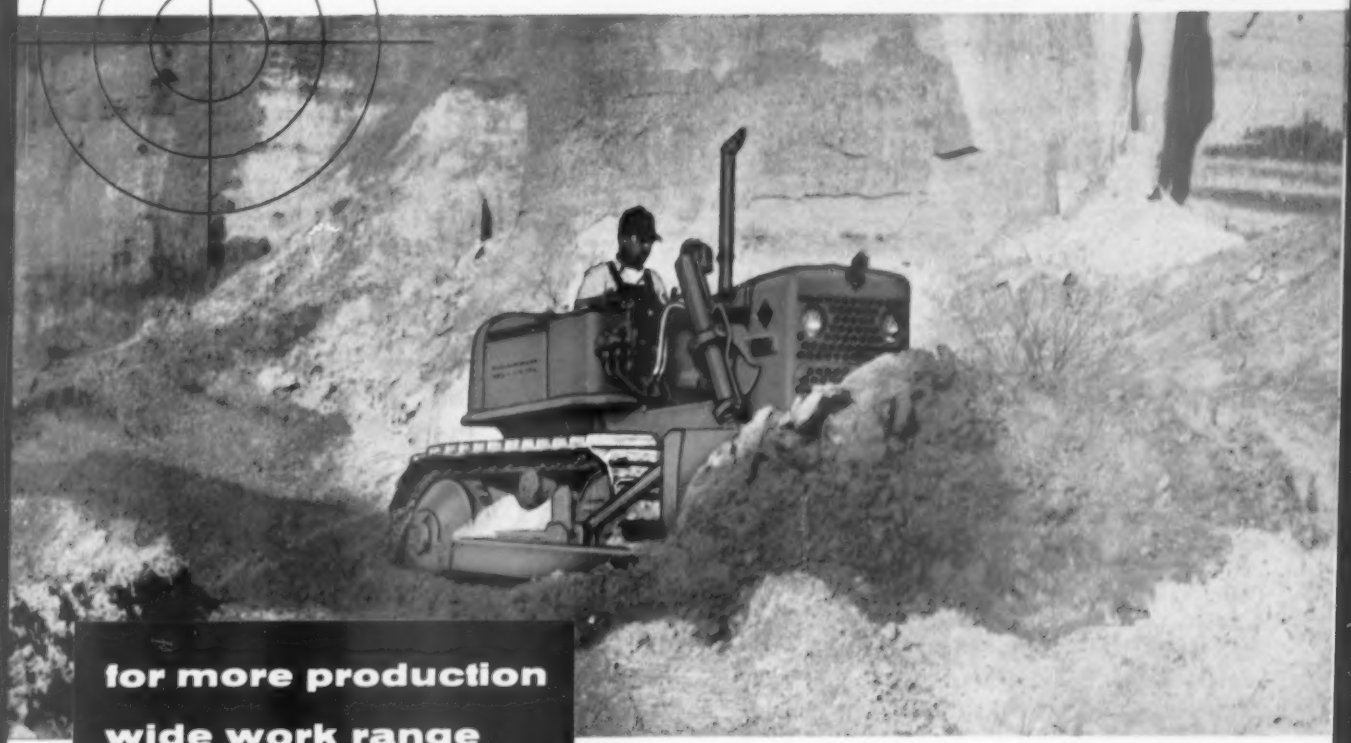
Product breakdown shows 10 percent of mine output going into flotation concentrates, 20 percent into gravel spar, and 50 percent into road rock. Flotation tails account for the other 20 percent.

An 18- x 32-in. Telsmith jaw crusher was installed recently ahead of the storage silos. This eliminated the need for a man on the grizzly above the silos. Stone from the silos goes through a secondary jawcrusher and then a gyratory crusher in closed circuit with a 2-in. screen. Minus 2-in. stone travels over a TransWeigh Belt-Meter that records weight of feed to the mill circuit.

Washing wells built into the primary screen help to remove clay and limonite particles that often are caked on the ore. Durward Spees, mill superintendent, developed these wells. First tried

Please turn to page 104

Set your sights on an HD-6B



for more production
wide work range
low job costs

52 drawbar hp — **63** belt hp — **15,540** lb (with dozer) and all these exclusive on-the-job advantages important to owners and operators.

All-steel, box-A main frame — soaks up shock loads.

One-piece steering clutch and final drive housing — line-bored for true alignment of shafts and gears.

Straddle-mounted final drives — with bearings on both sides of gears to maintain gear tooth alignment.

Heavy-duty truck frames — keep tracks in line, reduce wear . . . help get more work done at lowest possible cost.

Allis-Chalmers long-life diesel engine — with follow-through combustion that delivers power for big output with ample power reserve.

Simplified lubrication — including 1,000-hour lubrication intervals for truck wheels, idlers, and support rollers . . . provides extra working time.

Unit construction — makes service easier, faster . . . major units can be removed without disturbing adjacent assemblies.

Operator ease and comfort — with foam rubber seats . . . responsive controls . . . full visibility.

Wrap-around radiator guard — serves as dozer lift frame . . . reduces weight and cost, produces superior balance for tractor-dozer.

Engine-mounted bulldozers — direct lift . . . positive down pressure . . . hydraulic straight blade or angle blade.

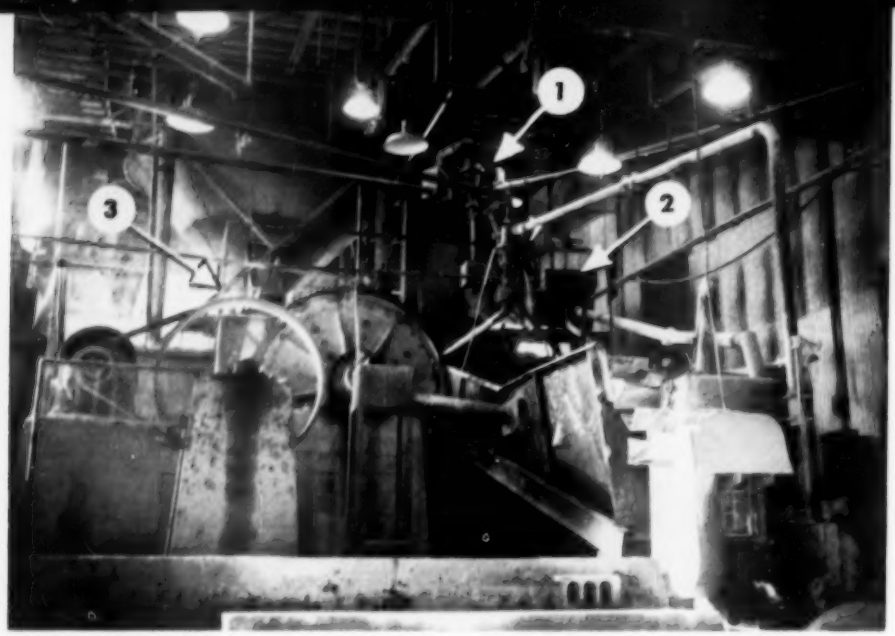
Plus heavy-duty, tapered roller bearing truck wheels, heavy duty truck wheel guards, 24-volt direct electric starting, crankcase guard, bumper, and lights at no extra cost.

Check the complete service program offered by your Allis-Chalmers Construction Machinery dealer. His factory-trained servicemen, factory-approved facilities, and stocks of True Original Parts keep your equipment operating properly . . . add up to the kind of service that saves you money.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

Get all the facts from your Allis-Chalmers dealer . . . now!

ALLIS-CHALMERS



Grinding circuit: (1) liquid cyclones; (2) thickener; (3) discharge of plus 65-mesh fines to ball mill

experimentally, they are now effective parts of the mill circuit.

Crushed ore from the feed belt goes into a stone-box. From there it moves onto a vibrating washing screen (See Fig. 1). Water jets on the first section of screen (¼-in. openings) wash off some fines as the stone moves over the screen to a washing well. Here, each stone becomes part of a churning mass 6 in. thick and 12 in. wide. Fine adhering particles such as shale and clay are scrubbed off as stone turns against stone.

Since new material is being fed constantly to the washing well, scrubbed stone is forced out. Jets of water wash the stone moving across the second section of screen (½-in.) Stone then drops into a second well to be washed again.

A lower deck, equipped with 10-mesh screen, has the same washing well and water jet arrangement. All plus 10-mesh material goes to the heavy-media seperation circuit. Minus 10-mesh fines are pumped to the grinding circuit.

The separation vessel, which is a 7-ft. Wemco cone, operates with a differential specific gravity so that the sink can start falling fast. Pulp gravity runs 2.60-2.65 at the top and 2.78-2.85 at the bottom. An air lift removes the sink. A section of ¾-in. screen has been added at the end of the media reclaiming screen to separate the sink into two sizes. About 0.35 lb. of the ferro-silicon is lost per ton of stone treated. The HMS sink is marketed as fluorspar gravel and is sold to steel companies as a flux or to the Federal stockpile. Value is dependent on effective units (e.u.) of fluorite. Units are found by subtracting 2½ times the percentage silica from the percentage fluorspar. Any material under 60 percent effective units is completely unacceptable.

Lead and zinc also sink in the vessel. The only way to control their occurence in the fluorspar gravel is to avoid mining ores with excessive percentages of these minerals. Float product is stockpiled and sold as road rock. Assays of mill products are given in Table III.

Table III. Average Assays, Crystal Mine and Mill (in percent)

	Zn.	$CaCO_3$	SiO_2	CaF_2	$BaSO_4$	R_2O_3*	E.U.**
Head feed		45.11	17.01	31.15	1.16	6.73	
HMS feed	0.26	52.50	11.84	27.60	0.72	7.34	
HMS gravel	0.47	7.63	4.50	82.95	3.36	1.56	71.70
HMS tails	0.10	69.90	15.16	7.31	2.54	5.09	
Flotation feed	0.50	27.30	20.40	36.69	4.82	10.79	
Flotation conc.		1.92	0.80	96.68	0.20	0.40	
Flotation tails	0.51	41.20	30.66	5.28	10.48	12.38	

*Other oxides
**Effective units CaF_2

Grinding circuit feed (minus 10-mesh from washing screen) is pumped to two wet cyclones that function as dewaterers and classifiers. Overflow from the units, containing minus 65-mesh fines, goes to a thickener. Sand from the cyclones is further dewatered by a spiral. Then, it is lifted to a storage silo by a bucket elevator, then to a ball mill.

The wet cyclones were tailor-made at the plant. Various sizes of upper and lower outlets and of the inlet nozzle were tried. The conical section also was varied. Feed to the tandem cyclones is 20- to 35-percent solids, and their combined output is 45- to 60-percent solids. The tandem arrangement is used to provide additional capacity needed for surges in cyclone feed.

The 5- x 4-ft. grate-discharge ball mill is charged with 2½-in. steel balls and revolves at 29

r.p.m. It operates in closed circuit with a spiral classifier and another wet cyclone. Classifier and cyclone overflow is piped to the thickener.

Pulp from the thickener is 35 to 45 percent solids. It has a sieve analysis that shows 100 percent passing 65-mesh, and no more than 5 to 7 percent is retained on 100-mesh. A diaphragm pump is used to move the pulp to the conditioner.

The new lead and zinc circuit at Crystal is ready to process high-sulfide ores. A few faces in the mine workings already show quantities of metallic sulfides that must be removed to produce the quality products the company seeks. Development drilling has shown that future mining operations will encounter fluorspar with substantial quantities of galena and sphalerite.

The new circuit will be used when the zinc content of metallurgical grades of spar reach 0.5 percent. Mining costs will be reduced, since it will be possible to mine all ores above cut off grade. No additional grinding will be necessary, because zinc is released at the present grind.

When the high-sulfide ores are mined, the HMS circuit will serve as a pre-concentrator. The sink product then will be too high in lead and zinc and will have to be up-graded by grinding and flotation.

Demand for acid grade spar is gradually rising; the new lead and zinc circuit will enable Crystal to produce a large proportion of this product. The sulphide circuit presents few operating problems, since it is similar to the fluorspar flotation circuit.

The conditioner serves the double task of heating pulp to 90 deg. and maintaining a constant pulp density. Temperature of the pulp is important, since higher temperatures speed the action of the flotation reagents. Pulp density is checked hourly, because the efficiency of flotation is largely dependent upon this variable.

Six rougher and eight cleaner cells are used in the fluorspar flotation circuit. A "quick lime" determination is run hourly on the spar concentrates. Tests show right away whether acid-grade or ceramic-grade material is being produced. When a middling product is taken, it is reground and returned to the circuit. A drum-type filter reduces moisture in the concentrate to 20 percent.

Filter cake is fed to a 4-x36-ft. rotary unlined dryer fired by liquid petroleum gas. This unit revolves at 6 r.p.m. The exhaust gas temperature actuates a thermostat that controls temperature, and is coupled to a recording instrument. Temperature of exhaust gases range from 150 to 400 deg., depending upon whether or not it is necessary to burn the flotation reagents off the spar by partially calcining.

Dried fluorspar is lifted by an enclosed bucket elevator and chuted into one of four compartments of a storage bin. Using the results of a "quick lime" determination, the material is segregated in the compartments by grade.

Packing dried acid or ceramic grade from four-compartment bin

A contract hauler takes care of all bagging and hauling of material — bagged acid- or ceramic-grade spar, or bulk products such as gravel spar or foundry lump. These materials are hauled to either the rail shipping point at Junction, Ill., or to a barge loading point at Cave in Rock. The contract hauler also is in charge of operations of the Minerva Oil Co. warehouse at Junction, where 1000 tons of bagged products are kept. S. J. Kelly manages company sales for both Minerva No. 1 and Crystal mills from the Fluorspar Division's main office in Eldorado, Ill.

Personnel at Crystal-Victory mine and Crystal mill consists of 5 supervisory, 21 mill, 36 mine, 25 shop, 6 office, and 3 laboratory employes, headed by I. V. Robertson, plant manager. Flotation is operated continuously. The HMS plant runs 24 hrs. a day, five days per week.

The alert leadership of Joseph Desloge, president, and Gill Montgomery, vice-president and general manager, has kept Minerva Oil Co.'s Fluorspar Division strong. It is now in a strategic position to profit from the growth of fluorspar markets promised by increased steel and aluminum production and growing chemical needs. Management's belief in the future of fluorspar is strong. Minerva has expanded during lean years, while other companies chose to give up in the face of rough foreign competition.

Estimate Fluorspar Reserves

OFFICE OF MINERALS MOBILIZATION, Geological Survey, U. S. Department of the Interior, has estimated fluorspar reserves of the United States at about 22½ million short tons that contain 35 or more percent calcium fluoride or the equivalent value in combined fluorspar and metallic sulfides. About 61 percent is measured and indicated ore; the rest is inferred ore. The reserves could support mine production for 30 years at the 1951-55 rate of about 750,000 tons of crude ore annually.

Calaveras Reports Earnings

CALAVERAS CEMENT CO., San Francisco, Calif., announced that its net earnings for the first nine months of 1956 were $1,147,909 as against $1,173,184 for the corresponding period a year ago. This was equal to $2.94 per share as compared to $3.01 per share at the same time last year. Net sales for the first nine months of 1956 totaled $8,830,522, an increase of $644,862 over sales for the first nine months of 1955. The 1956 earnings figure includes a non-recurring gain of $126,321 from the sale of a capital asset during the first quarter of the year.

Reveals Mineral Resources

SOUTHWEST RESEARCH CENTER, San Antonio, Texas, has prepared **Southwest Resources Handbook,** containing a mineral section by Dr. William B. Mather. Many hitherto ignored deposits are said to be revealed in the book, but Dr. Mathers says full exploitation of the resources depends upon a program of systematic exploration. He warns that southwestern states may be missing many mineral possibilities because of outmoded information and inadequate financing of state geological surveys. He urges communities and areas to launch a program of charting possible deposits of these minerals.

Marquette Dividend

MARQUETTE CEMENT MANUFACTURING CO., Chicago, Ill., paid a regular fourth quarterly dividend of 35¢ on common shares, bringing dividend payments on Marquette common to a total of $1.30 for the year 1956.

•

ARKANSAS STATE HIGHWAY DEPARTMENT has requested a 1957-59 budget totaling $164,540,500, an increase of $67,156,500 over the 1955-57 budget.

HARBISON-WALKER REFRACTORIES
of special merit—for every requirement

Select the best for each particular purpose from the full complement of types and classes of refractories which are especially suited for the various conditions involved in the many different rotary kiln operations.

Brands With Long Service Records

Basic Refractories for High Temperature Zones of Rotary Cement Kilns

MAGNECON—THERMAG—MAGNEX

Leading High-Alumina Brands

ALUSITE 70% Alumina
ANCHOR 60% Alumina
CORALITE 80% Alumina

LOTHERM—The high strength insulating brick specifically developed for use in the preheating zones of rotary cement kilns, provides durable insulating linings for direct exposure to the prevailing kiln conditions.

Various high duty and super-duty fireclay brick brands of superior quality are available from plants which afford lowest transportation costs—Pennsylvania—Missouri—Ohio—Alabama—Texas—Kentucky—Maryland.

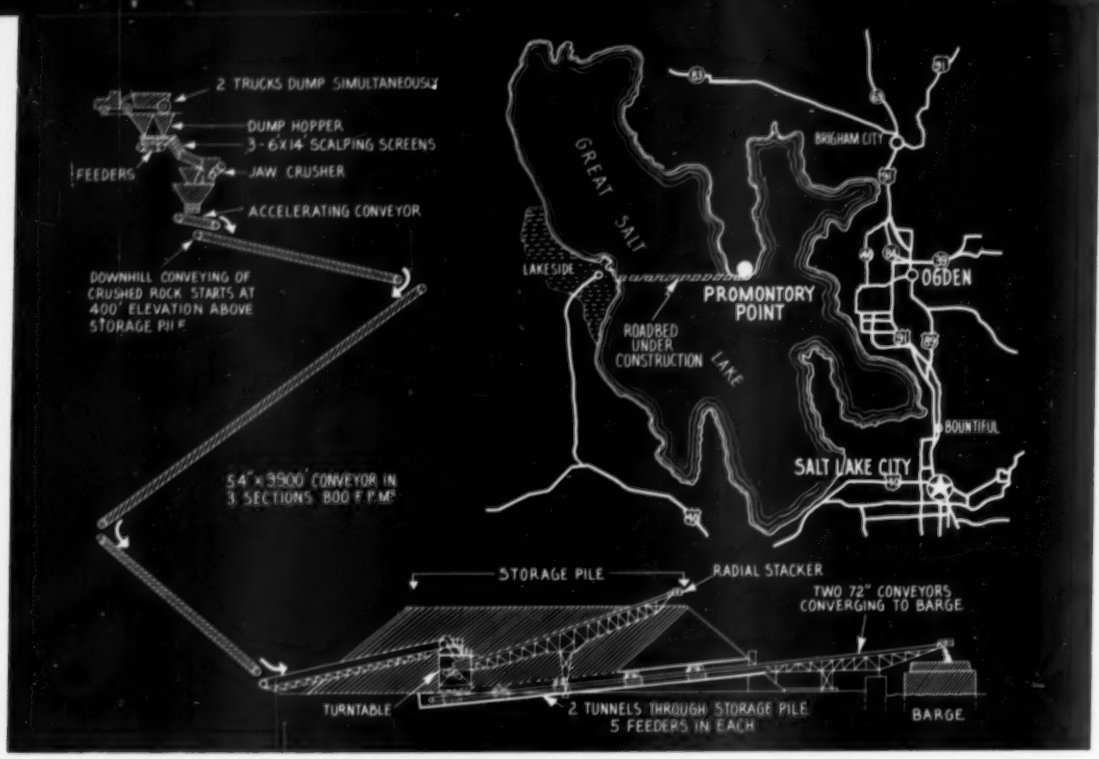
—and the outstanding abrasion resistant refractories—DURO and WYLAM A.

—as well as all classes of Plastic Fire Brick, Castables, Mortars and Cements and Insulating Refractories.

HARBISON-WALKER REFRACTORIES COMPANY
AND SUBSIDIARIES

World's Most Complete Refractories Service **General Offices, Pittsburgh 22, Pennsylvania**

Enter 1448 on Reader Card



Map showing location of big gravel fill project and plant flow diagram

Rock Fill to Replace Trestle Across Great Salt Lake

Huge job to take 32 million yards of rock and gravel, $45 million and four years to complete

By WALTER B. LENHART

THE LARGEST ROCK AND GRAVEL-HANDLING JOB that the world probably has ever seen went into operation during December near Promontory Point, roughly 25 miles west of Ogden, Utah.

For many years, the Southern Pacific railroad has maintained a wooden trestle across a portion of Great Salt Lake, commonly known as the Lucin Cutoff. This 52-year-old single-track trestle, expensive to maintain, will be replaced with a rock and gravel fill that will be almost 13 miles long. The fill will be up to 500 ft. wide at its base, 38 ft. wide at the top and up to 77 ft. thick. An estimated 32,000,000 cu. yds. of material will go into the project.

The Morrison-Knudsen Co., Inc., Boise, Idaho have the primary contract for the work, and it is expected to take about four years to complete it. Total cost is given at $45,000,000. Some $15,000,000 was spent for specialized equipment, including six 150-B 6½- to 8-cu. yd. electric shovels, 11 Euclid bottom dumpers, (25-cu.-yd. capacity), 15 Euclid (17-cu. yd.) end-dump trucks, a scalping and screening plant, plus a belt conveyor system with 13 separate units. Equipment already owned by the contractors also is available.

A trench has been dredged in the bottom of the lake to remove muck and silt. A fleet of six bottom-dump

(Continued on page 112)

PHILADELPHIA SLAG COMPANY
DIVISION OF ADAMS PRODUCTS CORPORATION
Producers of
CRUSHED SLAG and BITUMI[illegible] CONCRETE
SWEDELAND, [illegible]
June 28, 1956.

"Paid for itself in two years operation"

Plymouth Locomotive Works
Fate-Root-Heath Company
Plymouth, Ohio

Gentlemen:

In February of 1954, we put into service a 35-ton Plymouth Diesel Hydraulic Locomotive, to haul battleship cars of slag from the slag bank to our plant. This locomotive replaced a 70-ton six wheel steam locomotive.

The Plymouth Diesel has done our work most satisfactorily and at a great saving in the cost of operation. The steamer required 3 to 5 tons of coal per day, while the Plymouth Diesel, doing the same work as the steamer, consumes approximately 75 gals of fuel per week.

The savings effected by the use of the Diesel to date, have equalled the cost of the new locomotive. We are very well pleased that we made the change from steam to Plymouth Diesel.

Yours very truly,
Robert F. Peters
Robert F. Peters, Supt.

Plymouth Torqomotive half as big as former locomotive

Hauls same loads but saves over $1000 in fuel monthly

Pays for itself in 28 months

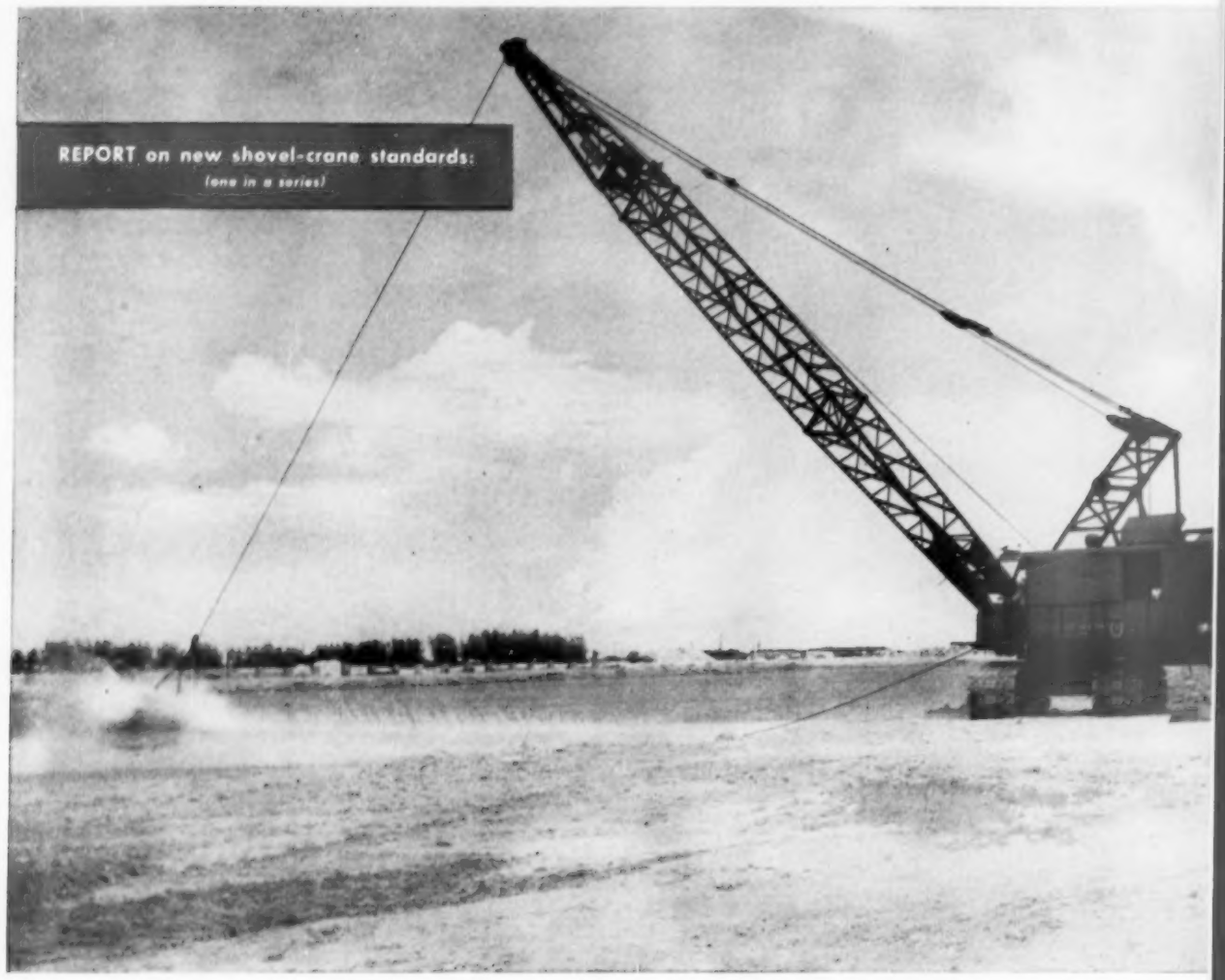
Maybe a Plymouth can do the same for *you*. Find out. Send a brief outline of your haulage needs for recommendation. Address: Plymouth Locomotive Works, The Fate-Root-Heath Company, Dept. A-5, Plymouth, Ohio.

ALSO BUILDERS OF F-R-H CERAMIC MACHINERY

PLYMOUTH® LOCOMOTIVES

WITH TORQOMOTIVE DRIVE

Enter 1511 on Reader Card



Upping cycles per shift with

Standard on every Link-Belt Speeder, Speed-o-Matic fingertip controls minimize operator fatigue. Response is fast, positive, precise

Exclusive with Link-Belt Speeder, this true power hydraulic control system utilizes oil under pressure. An engine-driven pump supplies pressure to put the machine through its paces at the flick of the operator's wrist. Result—he's not subject to costly end-of-the-shift letdown... he stays fresh, works at high speed *all* shift.

Hydraulic-actuated clutches . . .

engage smoothly, surely . . . eliminate jerk, jump or lag. There's perfect feel of the load for high-speed with safety and accuracy. Self-compensating for heat and normal lining wear, the clutches eliminate frequent stops for clutch adjustments . . . convert downtime into productive time.

Advanced design throughout

When you put a Link-Belt Speeder on your job, you get a machine that's years ahead of the field . . . a machine tops in production profit, unusually low in maintenance and service costs. See how you, too, can set new high standards of shovel-crane performance, earn bigger return on your equipment investment. See or call your Link-Belt Speeder distributor for the complete story or write: Link-Belt Speeder Corporation, Cedar Rapids, Iowa. 14.328

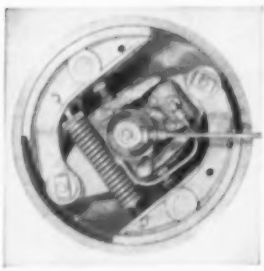
High speed stockpiling

Three yard dragline at left features exclusive Speed-o-Matic controls as standard equipment. System utilizes oil under pressure maintained by engine-driven pump through variable pressure valves, transmits pressure through oil directly to the hydraulic-actuated clutches. Engagement is smooth, precise. Operator has perfect feel of the load for effective work even when the bucket's under water.

More usable horsepower

Size for size, Link-Belt Speeder shovel-cranes utilize more of the engines' available horsepower. This bonus pays off in added power at the bucket teeth, greater line pull plus extra power to swing, hoist and travel. Although it gets more usable power and line pull out of the same engines used in other shovel-cranes, a Link-Belt Speeder remains well within the engine manufacturers' recommended operating speeds.

power hydraulic controls



Self-compensating clutches

Hydraulic-actuated pistons automatically adjust for heat and normal lining wear. Hydraulic pressure is unaffected regardless of the distance the piston moves to engage clutch.

Adds an hour's output per shift! Independent-Swing-and-Travel, available on 11 models, eliminates shifting, saves 20-30 seconds each machine move. All operations are completely independent of each other.

It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

Enter 1489 on Reader Card

A section of the conveyor system at Little Valley, Utah before operation

(Continued from page 108)

steel barges, each holding 2000 cu. yds., are used in the filling operation. They are towed to the site by six 1000-hp. tug boats. The barges are said to be the largest of this type ever built. Each is 250 ft. long, 55 ft. wide, and has seven separate compartments. Also, each has hydraulically operated gates. The barges will be used to build the fill to within 10 ft. of the surface. Then, a fleet of seven 1000-cu. yd. flat-top or deck barges will be used in the work. They will carry to the site material that will be unloaded by dragline and/or clamshell units, to bring the fill to a height of 5 ft. above water line. Next, a fleet of rear-dump trucks and railroad cars will haul quarry-run rock that will be used to build the fill to a 17-ft. elevation above water.

The coarse quarry rock will act as rip-rap, protecting the banks from wave action. Quarries will be operated on both the east and the west end of the fill. Railroad side-dump cars will be used on the west approach.

Lake Bonneville was an ancient lake that spread over much of Utah. Great Salt Lake is the remnant of that ancient sea. During the life of Lake Bonneville, large deposits of gravel were formed at the margins of the lake and these deposits still remain. Some are high on the flanks of the surrounding mountains. The gravel to be used at Promontory Point is typical of the area. It is relatively small in size (mostly 1½-in.), although there are occasional larger fragments that may be of later glacial origin.

The screening plant at Promontory Point is designed to scalp out all plus 8-in. material, send it through a Pioneer crusher and reduce it to scalper size. The screening section uses a battery of three 6- x 14-ft. heavy-duty Robins scalping screens. Gravel will be transported to a truck hopper ahead of the screening plant by 25-cu. yd. Euclid bottom-dump trucks. Minus 8-in. gravel will be fed onto a 54-in. wide belt conveyor system that will deliver to a 70-ft. high surge pile.

Main belts travel at a speed of 850 ft. per minute, making the system one of the fastest in the transportation field. The belts handle up to 4200 tons per hour. Accelerating conveyors, 60-in. wide and 30-ft. long, are used at the feed end of the belt and at all transfer points from belt to belt. They operate at 500 f.p.m. and are designed

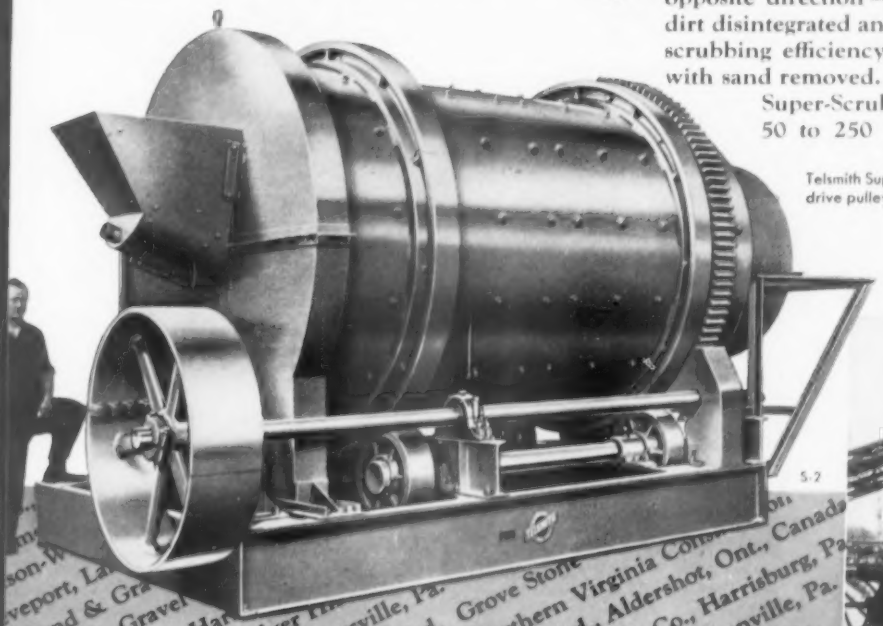
(Continued on page 114)

FOR CLEAN AGGREGATE—HIGH CAPACITY

TELSMITH®

Super-Scrubbers®

● **Most of the better sand and gravel pits are exhausted**—those now in use contain more clay, which must be eliminated. Many states now require that crushed stone be scrubbed before screening to eliminate soft stone, clay and dirt. This demands a better scrubber—one which will eliminate large amounts of clay with a minimum of expense for installation, water, power and upkeep. Telsmith's answer—the Super-Scrubber. **Outstanding features: high speed, terrific impact and grinding action,** much like a ball mill. Aggregate travels from feed to discharge end against clean water flowing in the opposite direction — emerges clean — with clay and dirt disintegrated and carried away by the water. Top scrubbing efficiency on coarse aggregate is obtained with sand removed. **A proven success**—the Telsmith Super-Scrubber made in 4 sizes: 60" to 96", 50 to 250 tons hourly. Get Bulletin 266.



Telsmith Super-Scrubber complete on steel frame with flat belt drive pulley. Can be furnished with enclosed, silent-chain drive.

●

Three of the five 60-inch diameter Telsmith Super-Scrubbers in Colonial Sand & Stone Co., Inc. plant, Port Washington, New York.

Buffalo Sand & Gravel Co., Silver Hill, Md. J. Cooke, Ltd., Aldershot, Ont., Canada
Valley Mould & Iron Co., Cleveland, Ohio Pennsylvania Supply Co., Harrisburg, Pa.
Amico Sand & Gravel Co., Morrisville, Pa. Fiala Crushed Stone Corp., Annville, Pa.
Fenton Construction Co., Ashland, Ohio Banks Stone & Sand Co., Kingston, Pa.
Colonial Sand & Stone Co., Inc., Port Washington, N. Y. Fenton Construction Co.
Grove Stone & Sand Co., Swannoa, N. Carolina Drake-Winkelman, Cuba
New Enterprise Stone & Lime Co., New Enterprise, Pa. Rogers Construction Co.
Northern Virginia Construction Co., Alexandria, Va. Sharon Silica Co., Jackson, Ohio
Rogers Construction Co., Portland, Ore. Meriwether Supply Co., Shreveport, La.
Contee Sand & Gravel Co., Fairland, Md. Sheffield Steel Co., Linden, Texas
Dutchess Quarry & Supply Co., Poughkeepsie, N. Y. Contee Sand & Gravel Co.
Contee Sand & Gravel Co., Laurel, Md. Miami Gravel Co., Rittenours, Ohio
Prince George Sand & Gravel Co., Laurel, Md. Buffalo Sand & Gravel Co.
Kilbuck Sand & Gravel Co., Brinkhaven, Ohio Colonial Sand & Gravel Co.
Harbison-Walker Refractories, Garrettsville, Ohio Davis Sand & Gravel Co.
Silverhill Sand & Gravel Co., Silver Hill, Md. Sharon Silica Co., Jackson, Ohio
Davis Sand & Gravel Co., Clinton, Md. Kilbuck Sand & Gravel Co.
Sharon Silica Co., Jackson, Ohio J. Cooke, Ltd., Aldershot, Ont., Canada
Kilbuck Sand & Gravel Co. Drake-Winkelman, Cuba

SMITH ENGINEERING WORKS

508 E. CAPITOL DRIVE **MILWAUKEE 1, WISCONSIN**

Representatives in Principal Cities in All Parts of the World • Cable Address: Sengworks, Milwaukee

Construction view of radical stacker and processing equipment

(Continued from page 112)

to lessen the impact of rock from belt to belt.

The belt system is about 2½ miles long and lowers material about 400 ft. over the distance. Once the belts start rolling, electric energy is generated and fed back into the use lines. A special motor-generator combination will convert energy from belts on their down-hill ride into electricity. Power thus generated will be fed into the main power supply, most of which is used by the six electric shovels. The belt system is expected to handle up to 90,000 tons per 21½ working hours per day.

Two tunnels are installed under the surge pile. Each has a 72-in. conveyor belt that operates at 600 f.p.m. Combined capacity of the belts is 12,000 tons per hour. Expected time required to load one of the 2000-cu. yd. steel barges is only 15 minutes. The surge pile belts, which are fed by 10 Robins overhead belt-type feeders, deliver gravel to the barge-loading point some 250 ft. from the surge pile. The system is equipped with six Robin-tronic electronic control units. They are set to provide an even flow of material. Controls also automatically stop the belts if they are obstructed in any way.

The tug boats used on the job were built in Portland, Ore. by Gunderson Bros. Each is 61 ft. long and was shipped to the area in sections to be assembled near the job. Barges also were assembled near the point of use.

Conveyor system underneath storage pile

Near Promontory Point, Morrison-Knudsen Co., Inc., opened a series of quarries. Some 17,000 ft. of coyote holes will be driven, each hole being five ft. wide and seven ft. high. These pits are expected to yield eventually some 13,000,000 cu. yds. of rock for the outer shell of the fill.

The new work parallels the older wooden trestle, but is about 1500 ft. to the north. The conveyor system, belting, idlers and related items were supplied by Hewitt-Robins, Inc. through its various subsidiaries.

The surge pile is built up by a radial stacker that is mounted on a 164-ft. long boom. A total of 27 motors is used on the conveyor system and motors are connected the drive assemblies by Jones speed reducers. The latter were supplied through the Jones Machinery Division of Hewitt-Robins, Chicago, Ill.

O'Dean Anderson is project manager for the M-K Co., Inc.

South Korean Plant Rising

UNITED NATIONS KOREAN RECONSTRUCTION AGENCY reports progress on the South Korean cement plant now being erected. The $8.5 million plant, with potential annual capacity of 200,000 tons will be completed this year. Limestone will come from nearby Round Mountain, and water from the River Yong. The cement plant is one of 4235 sites where U.N.K.R.A. has provided assistance.

Stockpiling and reclaiming system for phosphate raw material at Nichols, Fla.

U.S. Leads the World in Phosphate Rock Output

Review of 1956 production

By C. V. O. HUGHES

WORLD PRODUCTION OF PHOSPHATE ROCK probably exceeded 30 million long tons in 1956. The United States continued as the leading producer, with more than 45 percent of the total production. Africa produces about 30 percent of the world total, largely from French Morocco and Tunisia. Russia and the Pacific islands (largely British) probably account for another 20 percent. The remaining five percent comes from Asia, South America and Western Europe.

U. S. production for 1956 is estimated at 14.3 million long tons. Almost all of this rock comes from three areas: Florida, the western states, and Tennessee. Florida is by far the largest producer, with an estimated 10.5 million long tons in 1956. The western states probably produced 2.1 million long tons, and Tennessee 1.7 million long tons.

Florida rock averages about 33 percent P_2O_5; it goes primarily into the production of ordinary and concentrated superphosphate, secondarily into export. Lesser uses are for elemental phosphorous production and for direct application to the soil as ground rock.

Western rock averages about 28 percent P_2O_5; it goes primarily into electric furnaces for production of elemental phosphorous, secondarily into production of concentrated superphosphate and ammonium phosphate. About 15 percent of western rock is exported. A minor use is for direct application to the soil.

Tennessee rock averages only about 26 percent P_2O_5; it goes primarily into elemental phosphorous production. Its use in ordinary and concentrated superphosphate is secondary; its use for direct application to the soil is also secondary.

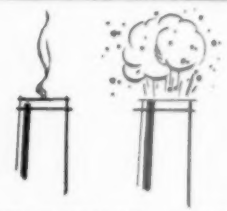
Florida output of phosphate rock is of greatest interest, since it represents about 75 percent of all U. S. production (about 35 percent of world pro-

(Continued on page 118)

THE ACL SYSTEM

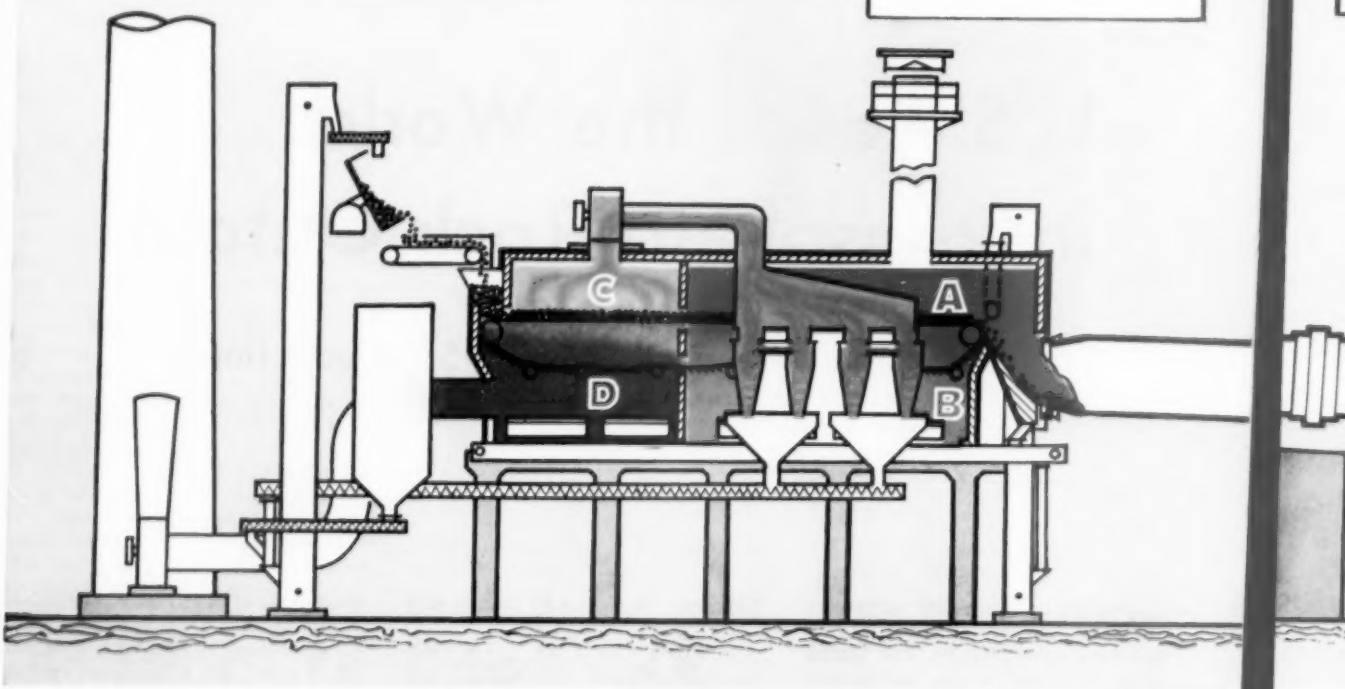
Cuts Cost

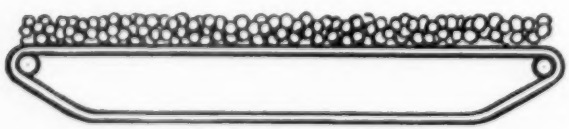
...puts you in a better competitive position—HERE'S WHY!



LESS DUST LOSS

Double pass of gases through traveling bed of pellets reduces dust loss below 1% of feed weight without an additional dust-collecting system. Valuable processed material is saved. Dust load of exhaust gas is lower than in any other system.



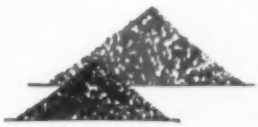


Traveling Grate Affords Many Advantages Because feed volume on traveling grate is constant, kiln operation is uniform and more efficient. There is no segregation of mix. Pelletizing locks in and maintains proportions of components. "Flushing" is eliminated, "ringing" minimized. Voids between pellets permit escape of moisture and gases without fluidization of bed. Because clinker maintains pelletized characteristics, it moves through the rotary kiln uniformly and burns easily.

EFFECTIVE DUST FILTRATION . . . efficient heat transfer . . . more uniform, better burning clinker . . . substantial savings in fuel, power requirements, space and manpower . . . maintenance economy—all these im-

ALLIS-

# of Producing Cement

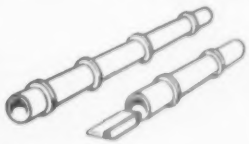


LESS FUEL

Fuel consumption for ACL systems now in operation averages 600,000 Btu per barrel of clinker. Conventional long, dry-process kilns range from 750,000 to 1,000,000 Btu. Powdered coal, fuel oil, natural or coke oven gas may be used.

LESS POWER

The ACL system for burning cement clinker requires about 2.3 kwhr per barrel of clinker for operation of kiln department. This is about one-third less power than required by rotary kilns using other preheating systems.



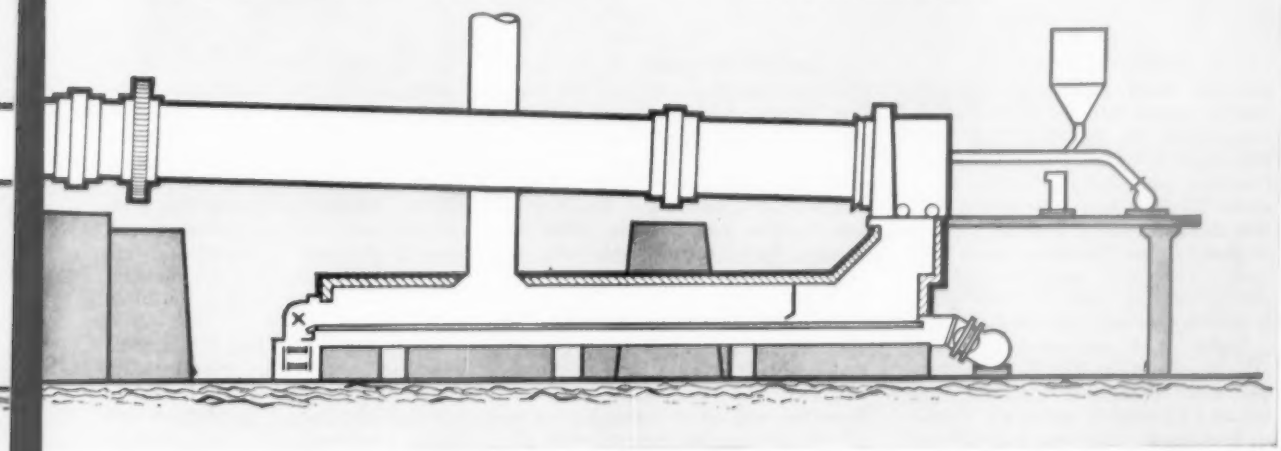
LESS SPACE

Entire ACL system—grate, kiln and cooler — is about 40% shorter than conventional long kiln installations. The totally enclosed traveling grate is about as high as the average kiln feed end housing.

How the Double-Pass System Works

Partial calcining and dust reclamation take place as hottest gases pass through the pellet bed on traveling grate. Gas temperatures are reduced from about 1800 to 500 degrees in this first pass (*A* to *B*). Next, gases pass through cyclones where larger dust particles are removed, and carried back to pelletizer. Final dust filtering takes place as gases pass through moist pellets on feed end of grate. In the second pass (*C* to *D*) gas temperatures are further reduced.

ACL is an Allis-Chalmers trademark.



portant advantages, and many more, are yours with the ACL system.

New Bulletin Available A new bulletin, describing the ACL system, Allis-Chalmers kilns and kiln auxiliaries, is ready for distribution. To get your copy, see your nearby Allis-Chalmers representative or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin. Ask for Bulletin 07B8431.

58 Installations by Lellep Licensees since 1950

CHALMERS

A-5108

Enter 1488 on Reader Card

Aerial view of Noralyn phosphate plant at Bartow, Fla.

(Continued from page 115)

duction). Most all of Florida's production (more than 98 percent of it) comes from the so-called "land pebble" deposits of Polk and Hillsborough Counties, just east of Tampa. Only about 170,000 tons is produced outside this area, and it is nearly equally divided between "hard rock" and "soft rock". The "hard rock" is used for electric furnace feed; the "soft rock" is used for animal feed supplement.

Eight major companies now mine and process in the Florida "land pebble" area. These are: American Agricultural Chemical, American Cyanamid, Armour, Davison, International Minerals & Chemical, Smith-Douglass, Swift and Virginia-Carolina Chemical. Armour re-entered the mining field in September 1955, and its operation throughout 1956 is the major change in the Florida "land pebble" picture for this year.

American Agricultural Chemical started its second electric furnace in late 1955, and 1956 represents its first full year of operation. During 1956, the Boyette flotation plant was converted to double flotation by the addition of the silica flotation step. This has improved the grade of the rock produced, and has increased the tonnage output. No significant changes were made in mining operations, in the South Pierce washer, or in central processing facilities at Pierce.

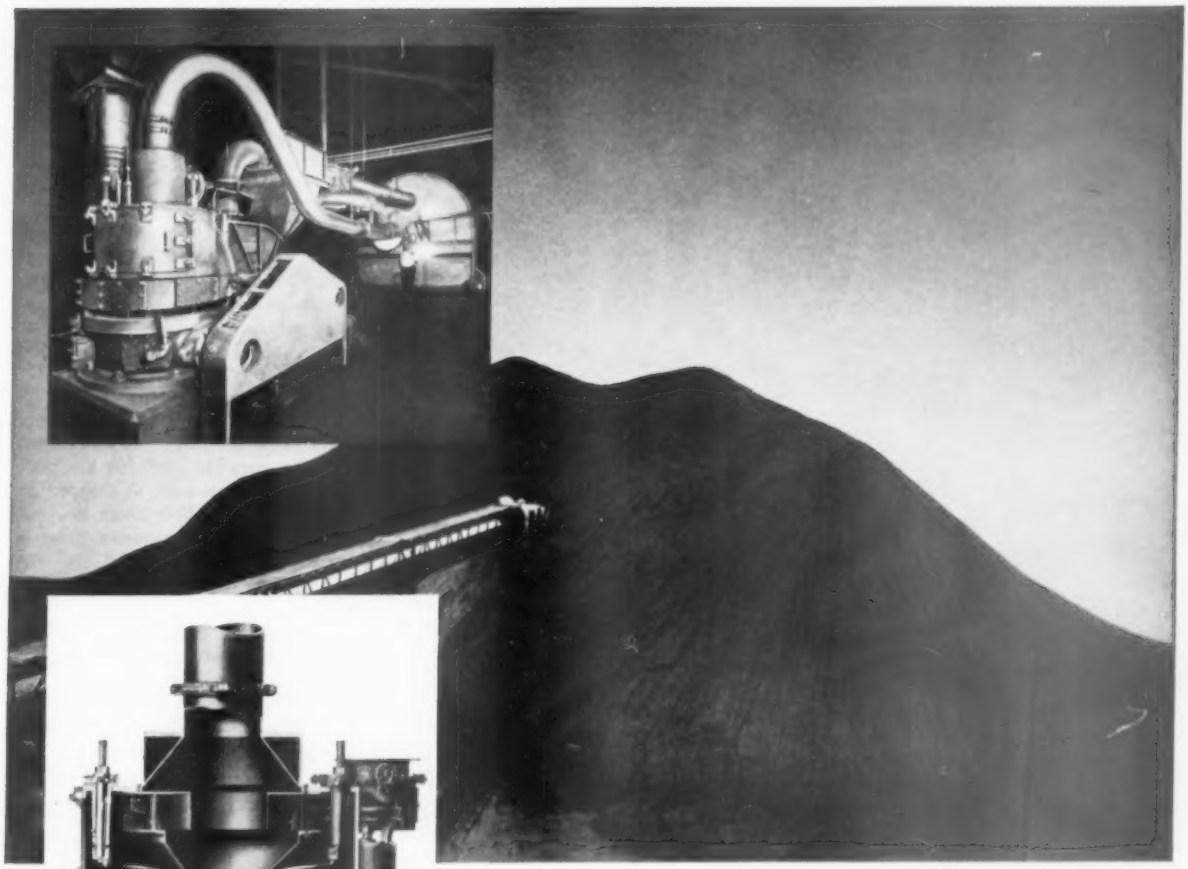
American Cyanamid is building a new washer and flotation plant at Orange Park; construction will be completed in mid-1957. These facilities will replace the old Saddle Creek washer and flotation plant, which will cease operating early in 1957. Cyanamid is also building a large new concentrated superphosphate plant at Brewster, with an announced capacity of 200,000 tons per year of triple superphosphate. This construction also will be completed by mid-1957. No significant changes are being made at the Sidney mine, washer or flotation plant. Central processing facilities at Brewster also remain essentially unchanged.

Armour's new mine, washer, flotation plant and rock processing units have operated successfully throughout 1956. Tonnages and grades have been satisfactory. The operation remains on a five-day week. No further changes were made in 1956.

Davison has made no major changes during the year; its mines and beneficiation plants at Bonnie and Pauway No. 4 continue to operate without significant change. The use of the two 5-cu. yd. draglines and long conveyor belt for auxiliary stripping has been discontinued as mining moved into an area of shallower overburden. Some changes in mobile units for material handling have been made in the triple superphosphate plant.

International Minerals & Chemical closed its Peace Valley mine in May; the 21-cu. yd. dragline was moved to Noralyn. Operations at Noralyn and Achan continued on a full schedule; Noralyn's capacity was increased somewhat after the 21-cu. yd. dragline from Peace Valley supplemented mining by the 30-cu. yd. machine already at Noralyn. No significant changes were made in rock processing (drying, grinding, storage). The Bonnie chemical plant is being modified and expanded. Dicalcium phosphate production facilities were expanded by work completed in July; work is in progress to expand sulfuric acid and phosphoric acid production

(Continued on page 120)



IN THE LONG RUN
...B&W Type EL Pulverizers

Wherever these "extended engagement" pulverizers are used for direct-firing of rotary kilns they have established long and impressive performance records.

BECAUSE:

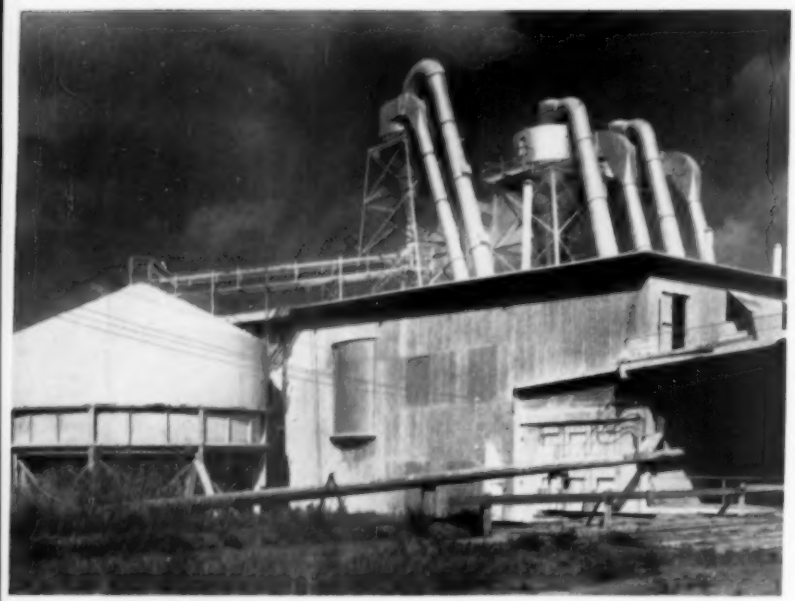
1. Grinding zone has no bearings or parts to be lubricated.
2. No internal adjustments are required.
3. Grinding elements are made of wear-resistant, long-life metals, with grinding balls held to close spherical tolerances.
4. Fully-enclosed reduction gear drive, with anti-friction bearings, and integral pump for automatic pressure lubrication.
5. Tramp iron and pyrites are automatically rejected, usually without interruption of service.

These qualities plus many years of manufacture and application combine to give you constant, high-level service for modern kiln operation. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

BABCOCK & WILCOX
BOILER DIVISION

C-212

Enter 1430 on Reader Card



Mill building at Nichols, Fla.

(Continued from page 118)

units. This work will be completed about March, 1957.

Smith-Douglass (Coronet Phosphate Division) built and put in operation a potassium silicofluoride unit, in conjunction with its defluorinating operations at Coronet. Its mining and processing operations otherwise remain unchanged.

Swift continued to operate its Watson and Varn mines at the same level of operation. Processing facilities at Agricola, including the triple superphosphate plant, remain basically unchanged, with only minor modifications.

Virginia-Carolina Chemical's mining and beneficiation operations at Homeland and Clear Springs worked at full capacity in 1956. The Phosmico flotation plant's capacity was nearly doubled by construction completed in September. No other changes were made in mining or in rock processing facilities. The concentrated superphosphate plant at Nichols underwent two changes: The storage facilities for concentrated superphosphate were expanded by 10,000 tons; and the sulfuric acid plant was modified and its capacity increased by about 40 percent.

In summary, Florida's 1956 production differed from 1955 in two important ways: There was no strike in 1956; and Armour's new major mining installation operated its first full year. A significant change for the future is American Cyanamid's start on its big new concentrated superphosphate plant. This will be the eighth such plant in the Florida area, and the fifth one to be built in the last three years. In 1954, 1.0 million long tons of Florida phosphate rock went into triple superphosphate production; in 1955, 1.6 million tons; in 1956, it was probably 2.0 million tons.

This trend continues. By 1958, perhaps 2.5 million long tons of Florida rock will go into concentrated superphosphate production. This marks a change in emphasis from the post-war period, when expansion of rock production facilities was the focus of attention. The emphasis now has shifted from increase in size to further refinement of the end product. A less striking illustration of this trend was the recent construction of two electric furnaces by American Agricultural Chemical, the first in 1953 and the second in 1955.

Total output from the western states for 1956 is estimated at 2.1 million tons. Idaho and Montana are the major producers, with minor tonnages coming from Utah and Wyoming. Idaho alone probably produced about 1.2 million of the total 2.1 million tons estimated.

In Idaho, five companies operated mines: Anaconda, Monsanto Chemical, San Francisco Chemical, Simplot, and Westvaco (Division of Food Machinery & Chemical). In Montana, three major companies operated mines: Montana Phosphate Products, Simplot, and Victor Chemical. In Utah and in Wyoming, only San Francisco Chemical mined, operating two underground mines in Utah and one open pit in Wyoming. Despite the addition of one new mine—Simplot's Centennial Mine in Montana—it is estimated that 1956 production for the western states was slightly lower than in 1955, due to a depressed fertilizer market.

Anaconda continued to operate its Conda mine near Soda Springs, Idaho. Underground mining was discontinued; only open-pit methods are now used. Most of the rock is shipped to the company's fertilizer plant in Anaconda, Mont. The Anaconda plant is reported to have increased its ammonium phosphate output during 1956.

Moncanto Chemical operated its Ballard mine near Soda Springs, Idaho, and processed the ore in its Soda Springs electric furnace plant.

San Francisco Chemical operated two mines (Waterloo and Dingle-Hot Springs) near Montpelier, Idaho; two underground mines in northern Utah, near Randolph; and one open pit in southwestern Wyoming. Plans were announced for construction of a new wet-treatment beneficiation plant to handle the Wyoming and Utah ores. In addition, San Francisco Chemical acquired an option on several thousand acres near Vernal, Utah, and has started development work. During 1956, Stauffer Chemical acquired 50 percent of San Francisco Chemical's stock. Stauffer also owns a 50 percent interest in Western Phosphates, Inc., making various phosphate fertilizers at its plant in Garfield, Utah.

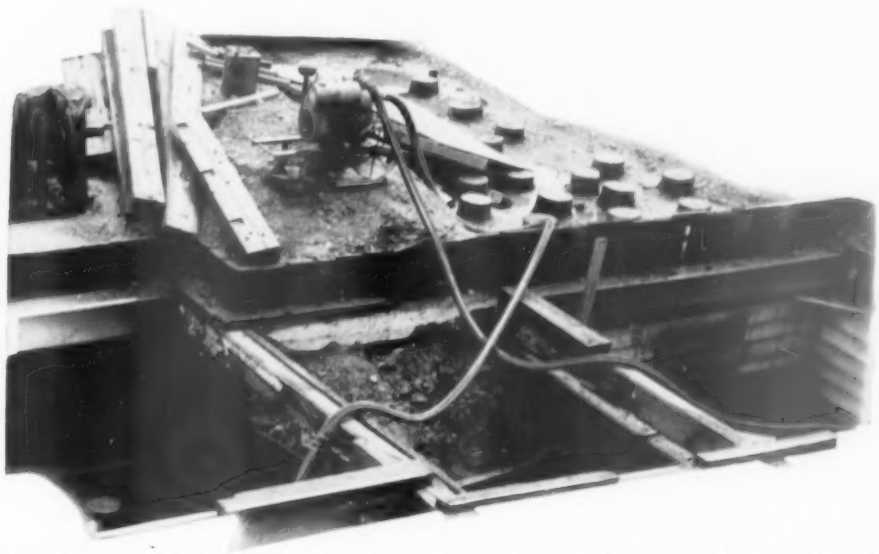
J. R. Simplot Co. continued to operate its Gay mine near Pocatello, Idaho; and opened a new mine, the Centennial, in western Montana. The Gay mine's output goes to Simplot's fertilizer plant in Pocatello, and to Westvaco's electric furnace plant near Pocatello. The Centennial mine's output is exported to Alberta, Canada, where Northwest Nitro Chemical makes ammonium phosphates as well as ammonium sulfate.

Westvaco operated its mine near Pocatello, Idaho, to supply part of the ore for its electric furnace near Pocatello. The remainder of the ore came from Simplot's Gay mine.

Montana Phosphate Products, with one open pit and one underground mine near Garrison, Mont., is a subsidiary of Consolidated Mining &

(Continued on page 152)

CONVEYOR BELTING... Our 87 years of experience enable us to offer the maximum in quality, regardless of service requirements.



SUCTION HOSE... This contractor hose is just one of many types Hamilton has developed to meet specific requirements.

OVER 87 YEARS OF SERVICE TO INDUSTRY

Write today for your free copy of the Hamilton complete-line catalog.

HAMILTON RUBBER

MANUFACTURING CORPORATION • Trenton 3, N. J.

A Division of Acme-Hamilton Manufacturing Corporation

ATLANTA • CHICAGO • CLEVELAND • HOUSTON • PITTSBURGH • INDIANAPOLIS • LOS ANGELES • NEW YORK • SAN FRANCISCO

Enter 1536 on Reader Card

Part 1

Azbe Continues to Improve Lime Kiln

His integrated kiln and gas producer system improves efficiency and quality at increased capacity

By VICTOR J. AZBE

THE AZBE SERIES of vertical lime kilns, to be fired with wood, coal, natural gas or oil, is in a continual state of development. Experiences of operators from all over the world, plus results of thorough kiln tests coordinated with laboratory research and theoretical studies, constantly shows new possibilities of design for improved performance.

Today's kiln is in many ways better than the kiln of but a few years past, even though the former ones were good. Although the Azbe kiln of today is much smaller, its capacity is greater and the lime quality, thermal and labor efficiency are improved.

The automatic cyclic slip method of operation, in combination with separate calcination of graded stone sizes and kilns equipped with a finishing zone, tends to reduce lime breakage in kilns greatly. It makes possible in vertical kilns calcination of stone that is highly fragile either as stone or lime. In the past, this was not possible without making an excessive amount of fines. The method should contribute to operations where hydrate is not in demand, or carbide furnace or similar lime is desired.

The new system of hot gas recirculation through the gas producer eliminates one fan and simplifies operation of the gas producer and kiln. No steam is required, the producer blast is very hot, but through its high CO_2 content clinkering of ash is effectively prevented and kiln temperatures are controlled.

The combination presented in the schematic drawing (Fig. 1) consists of thermally integrated, closely coupled lime kiln and gas producer. They are operated as a single unit in such a manner that the inherent thermal and operating disadvantages of one are counteracted by those of the other. It appears complicated, but not all of the features need to be used in any one case. What may or may not be desirable depends on indivdiual conditions. However, most features shown would prove advantageous in most cases.

If the fuel is wood, the gas producer arrangement would be somewhat different. If the fuel is natural gas, the producer would be unnecessary. But the kiln arrangement would, in a modified fashion, remain much the same. Gas producers would be used, if oil is used as fuel, but they would be of a special kind and built within the kiln walls proper. The main kiln features otherwise would remain the same.

There are times when even further elaborations than those shown are permissible. An example is when a lime kiln, a chemical unit, becomes more a part of a chemical plant, or when kiln gases are used in some chemical process. Another case is when there is the desire to enrich the air with oxygen gas to get a higher than normal CO_2 concentration in the kiln exhaust gases. These are special departures, more readily possible due to system control features but not to be considered here.

While the process starts with the charging of coal to the gas producer, dumping of stone at the kiln top and admission of air to the bottom of the kiln, hundreds of chemical actions and reactions occur between these three points. Lack of control over these cause all kiln systems to give trouble. Here are examples: clinkers, overburned lime, core, slag formations, disintegration, discoloration, recarbonation, laborious operation combined with bad performance with respect to capacity and fuel consumption.

Many years of study have been devoted to finding the cause of all these difficulties and ways to mitigate them. Eventually, studies have resulted in satisfactory solutions.

The Gas Producing System

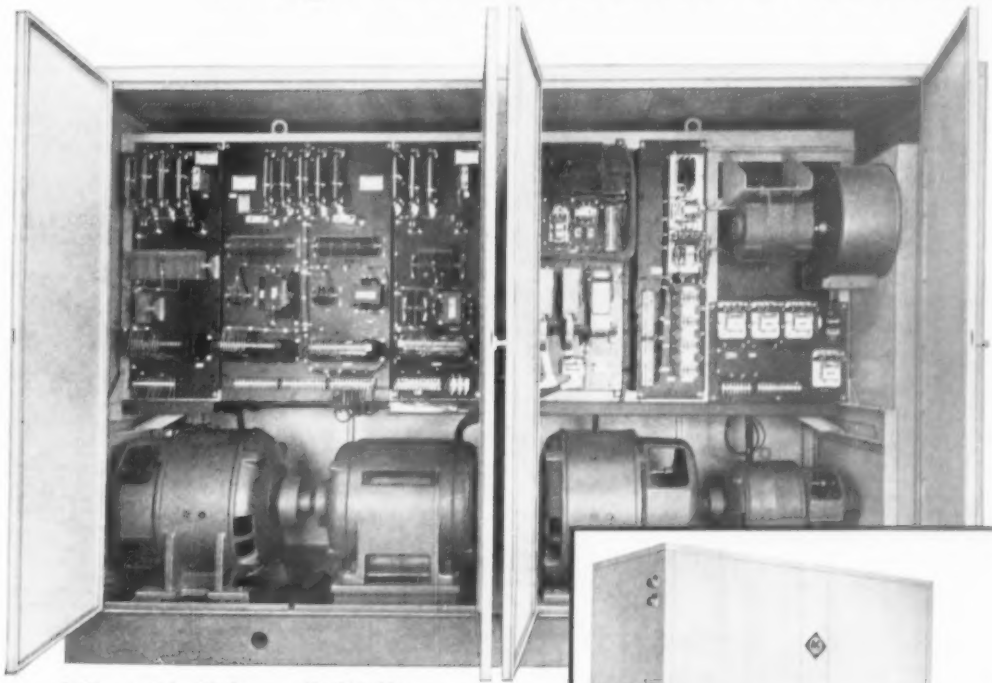
The system starts with the coal bin (1, Fig. 1). This may be a large bin, but a smaller one is preferred for use with the integral producer. The bin should be supplied about once a shift from an outside supply source that serves the bins of all the gas producers. It may be supplied from coal storage piles, or directly from railroad cars or trucks. The bin may be designed to minimize segregation of coal sizes. It may be designed for either the small single feeder or the larger double-feed gas producer.

Coal preferably should be of egg size, and of coking but not caking nature. That is, the pieces should remain intact as much as possible, gradually reducing in size to ash. Avoid use of coal that will soften, swell and fuse into a mass through which air has little chance to penetrate without excessive poking. Also avoid the use of non-coking coals such as some lignites having no binding agent, whose pieces on heating disintegrate nearly to dust and tend to block the passage of air through the bed.

Suitability of coal can be determined by heating a small amount in a closed crucible. Coal is less suitable if, after escape of volatile matter, the resultant mass has swelled greatly or if the remains are a fine powder. Other factors such as amount of ash and fusing point of the ash are of little importance when producers use a blast containing a high percentage of CO_2. There seems to be little of the sulphur from the coal absorbed in kiln operation. Main considerations are behavior of coal on heating and its cost per million B.t.u. (low heat value), with

There's MORE dependable speed control

- high response
- high shock resistance
- no fragile parts
- no maintenance



Adjustable Voltage Multi-Motor Package Drive is ideal for many industrial applications. Self-ventilation keeps unit clean, minimizes maintenance.

Size 3 Adjustable Voltage Power Unit rated 30 hp, of standard construction. Magnetic amplifier excitation provided.

Every one of the design features of the Allis-Chalmers Adjustable Voltage Package Drive assures you an easy, dependable means of power conversion.

Key to Package Drive dependability is the use of a magnetic amplifier to excite the field of the power unit m-g set. Sturdy and simple, this amplifier has no moving parts to wear out . . . no fragile components to be affected by vibrations. AND — there's no wasteful "warm-up" time needed. At the turn of a dial, you get immediate speed control.

Cost-saving assembly

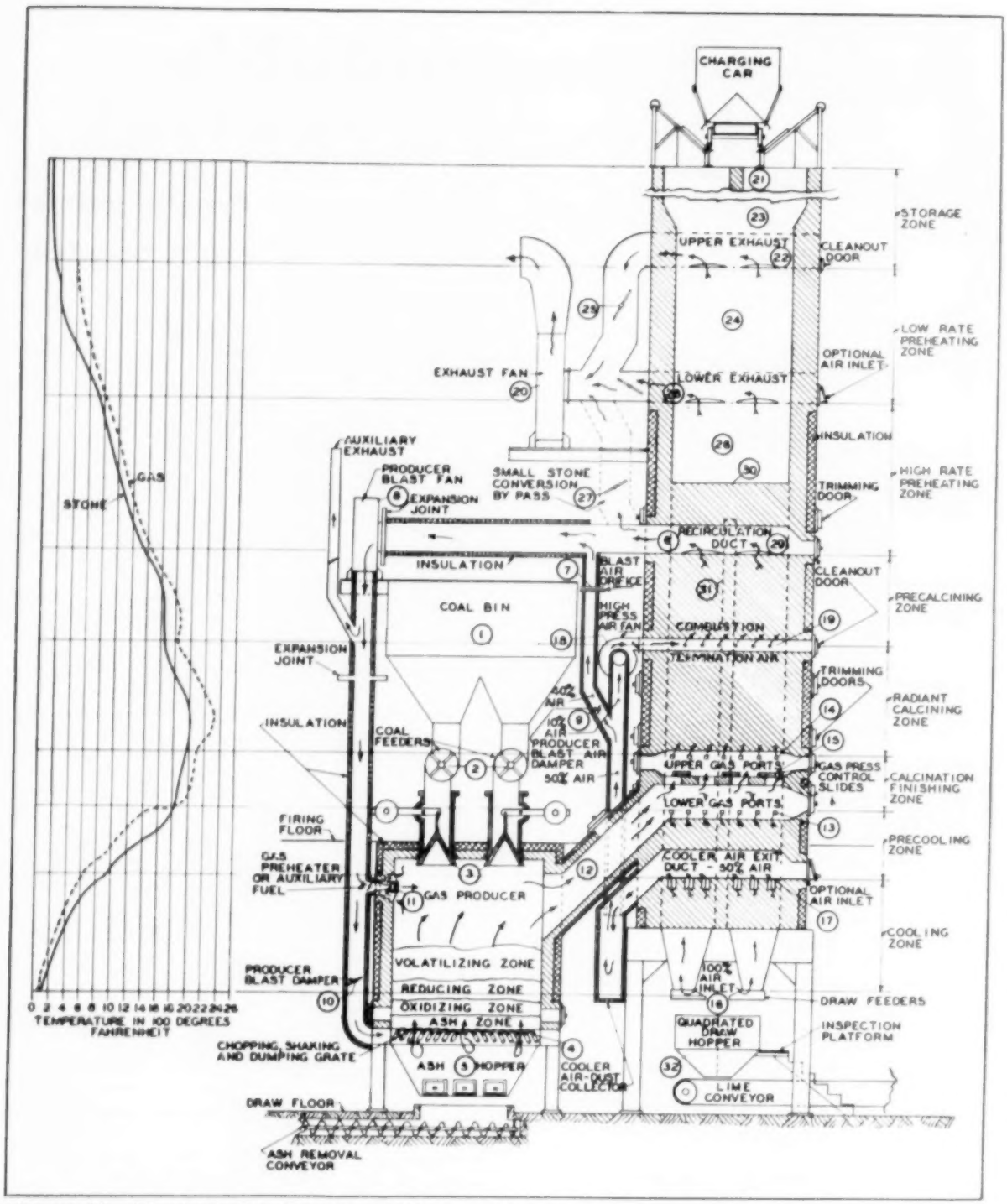
M-g set and control components are assembled in the power unit enclosure at the factory — saving you installation costs. Enclosures used for 30 through 200-hp units are completely collapsible and may be easily disassembled without loss of rigidity. Larger units have separately driven blowers to provide positive ventilation and pressure even when unit is idle.

Available in units from 5 to 200 hp, the package drive is ideal for any application requiring adjustable speed. Contact your nearby Allis-Chalmers sales office or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

A-5270

Enter 1437 on Reader Card



Integrated lime kiln (Azbe) gas producer system, 1953, showing kiln zones and gas circuits

special allowance for high moisture content.

Coal feeders are shown at 2 in Fig. 1. They may be manually, mechanically or air-cylinder operated by a timing mechanism. They function in conjunction with the fuel distributing bells (3) which act also as producer seals.

There are two Azbe gas producer types: the "open feed," as shown, and the "submerged feed." The latter has its advantages, but is practical only with use of non caking, lean volatile matter fuels, particularly shredded wood, bark, and bagasse.

In open type producers, the feeding of fuel has to be frequent to maintain

Hammer Life Increased 7 Times by HARD-FACING

Hammers used to crush limestone and shale remain in operation for 70 weeks now that they are protected with HASCROME high-chromium rod. Unprotected hammers are completely unserviceable after operating for only 10 weeks under the same conditions. The usual maintenance procedure is to recondition the hammers with HASCROME rod about every two weeks—after they have crushed approximately 13,000 tons.

Hard-facing proved to be the economical solution to this typical problem of severe impact and wear. Periodic rebuilding with inexpensive HASCROME iron-base rod resulted in one hammer doing the work of seven, thus saving the cost of six new hammers.

HASCROME rod is widely used to protect rock crushing and earth moving equipment because of its resistance to severe shock and impact. It is a tough alloy which work-hardens to Rockwell C-50, and doesn't chip or spall under heavy impact. The ability to resist mushrooming makes HASCROME rod an excellent build-up rod, too. It provides an excellent shock-proof base for harder, more corrosion-resistant HAYNES hard-facing alloys when severe abrasion or corrosion is the major problem.

See your local dealer for more information on the complete line of 18 HAYNES hard-facing alloys. One of them will solve your wear problem. If you don't know the location of your dealer, write to Haynes Stellite Company, a Division of Union Carbide and Carbon Corporation, Kokomo, Indiana.

See... | **Your local Haynes Stellite Dealer**

or

Write... | **to Haynes Stellite Company**

"Haynes" and "Hascrome" are registered trade-marks of Union Carbide and Carbon Corporation.

Enter 1429 on Reader Card

Azbe Lime Kiln

... Continued

a relatively constant gas temperature and gas quality. In the submerged type, charging may be far less frequent and in much greater quantity, since the actual feeding of fuel to the active bed occurs only at the rate that the fuel is gasified. While both types of producers have the volatilizing, reducing, oxidizing and ash zones, the so-called submerged feed has also a fuel storage zone and a more constant depth of volatilizing zone.

Gas producers have been designed specifically for intimate, integral connection to the kiln, one producer to each kiln. With this method, a much better gas-quality control is attained, accomplished through the simple regulation of the blast. Need for the troublesome, costly and heat-wasting dust collector and soot-accumulating gas flues is eliminated. The soot blowing problem is reduced to a minimum. There is no floor disposal of soot. It merely is blown into the kiln or back into the gas producer where it burns.

The producers are the level-grate type, because with this type a minimum ash thickness may be maintained and a more equal air distribution obtained. The producer design calls for a minimum of ash and a maximum active fuel bed thickness. An ash depth of six inches and a fuel bed of three feet is usual, quite the opposite to the relative bed depth of the hood-type producers. Required blast pressure is low, which makes hot, high CO_2 blast practical—something which could not be used at all in hood-type gas producers. It is only through these producers that the kiln operating system here described is made possible. A different sort of kiln operating system would be needed with the hood-type producer.

Grates may be operated by hand or by air cylinders. Because of the high CO_2 percentage in the blast, ashes normally are clinkerless. A short shaking stroke will discharge them. If necessary, a longer grate motion can be used, but it results in larger grate openings and a clinker chopping and discharging action.

This producer is different from others in which clinkers may float around for days before being discharged. In this case, if clinkers form through carelessness or for other reasons, they may be removed by special grate action or through special clinker removal doors. A clean producer bed is attained quickly.

Clinker removal is incorporated in the design to provide for contingencies. Such contingency provisions follow throughout the kiln design. The ash receiving hopper (5, Fig. 1) under the gas producers is emptied periodically. If desired, it may be connected to any suitable type of conveying system leading to externally located ash bins. Since the ashes are dry, no freezing or corrosion problems are encountered.

In usual gas producer practice, steam is admixed to the air used in the producer to avoid clinker formation. While the oxygen of the air generates heat, dissociation of steam absorbs heat. In this manner, clinkering is controlled with reasonable satisfaction if the coal is good. In the Azbe system, carbon dioxide (CO_2) from the kiln, whose dissociation has about the same endothermic function as steam, is utilized instead of steam (H_2O). Kiln gases have been used by Azbe for more than 25 years, with reasonable satisfaction if the coal was good.

The objection to steam, as used above, was that it was costly to generate and that it acted as a heat carrier, wasting valuable heat from the calcining zone of the kiln. The objection to CO_2 use was that the kiln gases were dusty and tended to block the air flow through the thick ash beds of the hood-type gas producers. Also, inert nitrogen is found with use of CO_2. Both are cold, and therefore heat wasting.

For these reasons, there seldom was enough of either used for complete clinker elimination. If enough had been used with the limited fuel bed thickness of the hood-type gas producer, bed temperature would have been reduced so much that the gasification rate and, in turn, kiln capacity would have been impaired.

A new system of carbon dioxide utilization was developed recently, and is illustrated here. It simplifies and betters both producer and kiln systems. This system will be discussed more fully under the heading of "Recirculating Gas Circuits," Part II. For the present, it will be stated merely that a good portion of kiln gases is withdrawn from the upper limits of the dissociation zone (6, Fig. 1) at around 1650 deg. F. At that temperature, the gases are too hot for any fan to handle. In view of this, they are blended with a measured amount of air at Point 7 in the diagram and reduced to a suitable temperature for the blast fan at eight.

The mixture is adjusted for the proper oxygen-carbon dioxide ratio. Since the air already has passed through a portion of the cooler, the combined blast is up to 1000 deg. F. and the mixture is about 15 percent CO_2 content and 10 percent oxygen content. It is an ideal producer-blast mixture.

The amount of fuel that may be gasified by the producer depends on the weight of the combined blast, its temperature, and its oxygen-CO_2 ratio. There are two controls: the air damper at 9 (see diagram) below the air measuring orifice and the blast damper at 10. Opening the air damper increases the oxygen, reduces the CO_2, and also reduces the temperatures of the blast. Control may be either the blast damper or air damper. Normally, the aim is to maintain a constant air-damper setting for a constant and high-as-possible blast temperature, and to take care of the other variations with the blast damper.

Ordinarily, as gas leaves the bed it is led to the kiln at whatever temperature it may be. Occasionally, when gas temperature is low and small stone is being calcined, the desire may be to have it hotter than its normal temperature for reasons of ignition and flame propagation. In such cases the preburner (11, Fig. 1) is brought into play, and some of the gas is burned in the gas producer gas space, heating up the remainder of the gas.

The Producer Gas Circuit

Gas leaves the producer through the gas neck at 12 in Fig. 1. There may be one or three of these, depending on the system adopted. The gas enters three longitudinal chambers, two located in the side walls and one in the center of the kiln shaft. Also called side and center burners, they are an exclusive Azbe development and have many possible modifications.

For distribution reasons, the gas is injected into the lime voids with a substantial force through many ports from either the side burners, center burner, or both. Introduction further on is on two levels—the lower level, 13, and the upper level, 14. Between these levels is a slide, 15, by means of which the amount of the gas leaving at the lower level is controlled. Without this special slide, the general tendency would be for most of the gas to leave by the upper set of ports, the lower set sometimes not obtaining any.

Purpose of the two sets of gas exit ports on two levels with pressure con-

(Continued on page 168)

Manitowoc 2½ yd. Shovel Loads 22 Tons of Crushed Rock Every 82 Seconds!

Also Feeds Crusher At Rate of 4000 Tons in 10 Hr. Shift

Nelson Bros. Quarry, La Harpe, Kansas, supplied an estimated 400,000 tons of crushed stone for an eight mile section of the Kansas Turnpike near Emporia. All of the rock, both before and after crushing, was handled by Nelson Bros.' 2½-yd. Manitowoc shovel. This unit fed 4000 tons of rock into the crusher every 10 hour shift—and filled hauling units to 22 tons capacity in one minute, 22 seconds. The Manitowoc was also used for stripping top-soil off rock beds and is now working in a 24′ ledge of rock in the quarry.

Boost Your Output

Every Manitowoc is a *powerhouse in the pit!* Call your Manitowoc Distributor now for the complete, profitable story.

"Plenty beefy for quarry work . . ."

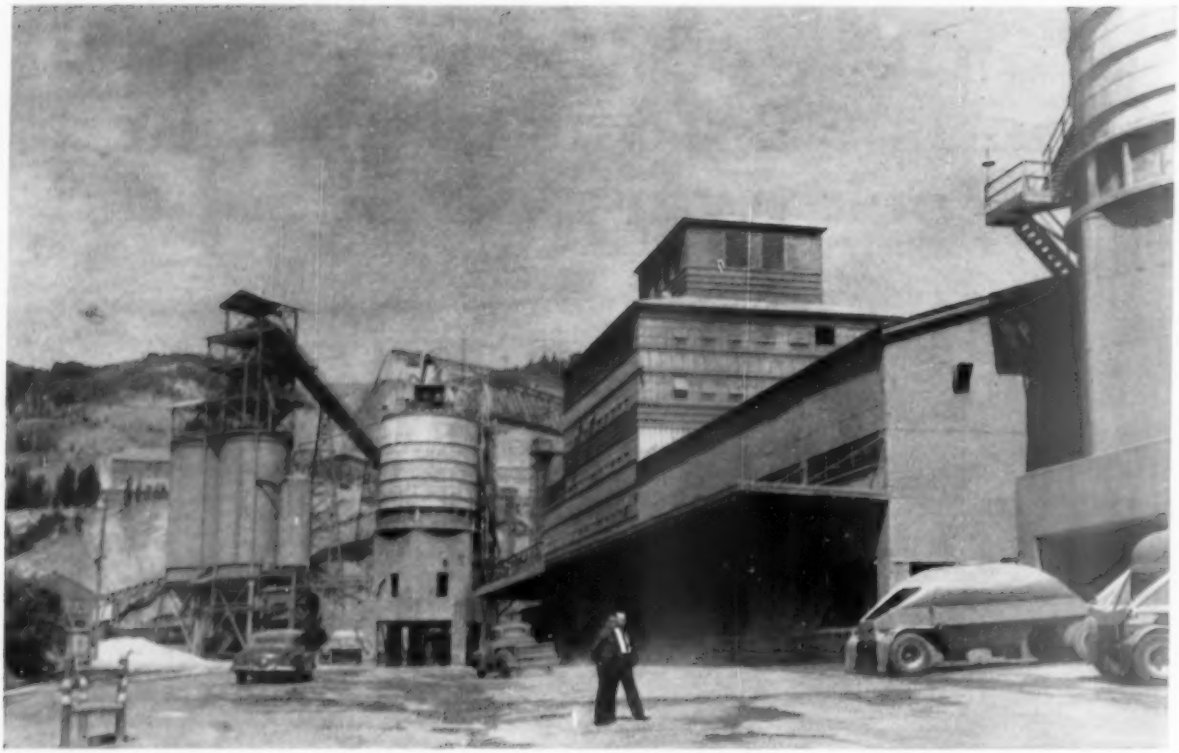
"Our Manitowoc is plenty beefy for this quarry work," said Mr. Carl Nelson. "We've got good service from this machine. We like it well enough that we're thinking of another one."

". . . easy to operate . . ."

Operator Allen Stokes commented, "I know the shovel can load even faster. It is easy to operate and beats anything I've been on. I like the way it handles when I move it, and its fast swinging speed. We have had no major repairs."

MANITOWOC
SHOVELS 1-5½ YD. Speed crane CRANES 20-100 TON

Enter 1451 on Reader Card



Main plant of Permanente Cement Co., Permanente, Calif., showing some of the bulk loading trucks, right

On the West Coast—

Portland Cement Goes By Truck

By WALTER B. LENHART

A GROWING TREND in the distribution of portland cement on the Pacific Coast is the use of bulk truck carriers with railroads and water haulage of lesser importance. The distances hauled by trucks are relatively great. Railroads connect the more important cities and towns but there are a large number of important communities not served by either water or rail transportation. The phenomenal growth of the ready-mixed concrete industry with batching plants served entirely by trucks is a somewhat different picture compared to areas in the East where both the aggregates and the cement can be sent by rail.

Widespread areas served by portland cement producers on the West Coast have led to the use of distribution plants at strategic points in the larger metropolitan areas. The distribution plants receive cement by water and by rail. In a few instances, bulk trucks haul to the distribution plant and unload. In such cases the use of the so-called "dual-purpose" truck is growing in importance. As oil is an important fuel at the producing plant, the dual-purpose truck hauls a payload of cement to the distribution yard, and returns with a payload of fuel oil. The oil supply facilities are usually quite close (in time, at least) to the distribution yard. The yards, however, can be served by rail.

Three portland cement companies on the Pacific Coast are in the ready-mixed concrete business. Two of these are also large producers of sand and gravel, and crushed stone aggregates. Some companies have large distribution yards for speeding up the delivery of fine and coarse aggregates, including ready-mixed concrete, so that distribution of portland cement from these established centers is a natural. One aggregate producer purchases clinker from portland cement producers and grinds and markets it un-

Tailings Go to Market - Separated by Sturtevant

10% WASTE SCREENINGS CLASSIFIED INTO PROFIT-MAKING PRODUCTS

Hills of bothersome tailings at a Mid-western rock-crushing plant are being classified into saleable products — agricultural limestone and sand for cement blocks — by a 10 ft. Sturtevant Air Separator. No extra men are needed to supervise the almost automatic unit — operating in rugged outdoor service. Screenings previously thought to have no commercial value are now going to market — **at a profit.**

THE SEPARATOR THAT UPPED 40 TO 400 MESH OUTPUT AS MUCH AS 300%

Sturtevant Air Separators range from 3 to 18 ft. in diameter: deliver fines from 40 to 400 mesh at rates as high as 65 tons per hour . . . in the cement industry, have a tested record of increasing mill capacities from 25 to 300% while lowering power consumption as much as 50% — when used in closed circuit with grinding mills.

Designed to cut costs and build profits, Sturtevant Air Separators give a lifetime of high-efficiency, low down-time service. Rugged construction plus easy accessibility for quick maintenance (typified by the "Open-Door" design in other Sturtevant equipment) assure more output per machine year.

Write today describing your problem. Please include information on material, process and desired capacity.

Address: Sturtevant Mill Company, 102 Clayton St., Boston 22, Mass.

What Can a Sturtevant Air Separator Do In Your Pulverizer System?

Controlled centrifugal whirl by balancing forces separates rapidly, efficiently, cement, lime, clay, talc, ceramics, refractories, phosphates, coal and many other materials. Also used for selection of pigments, limestone, fillers, plastics, oyster shells and abrasives. Write for Sturtevant Bulletin No. 087.

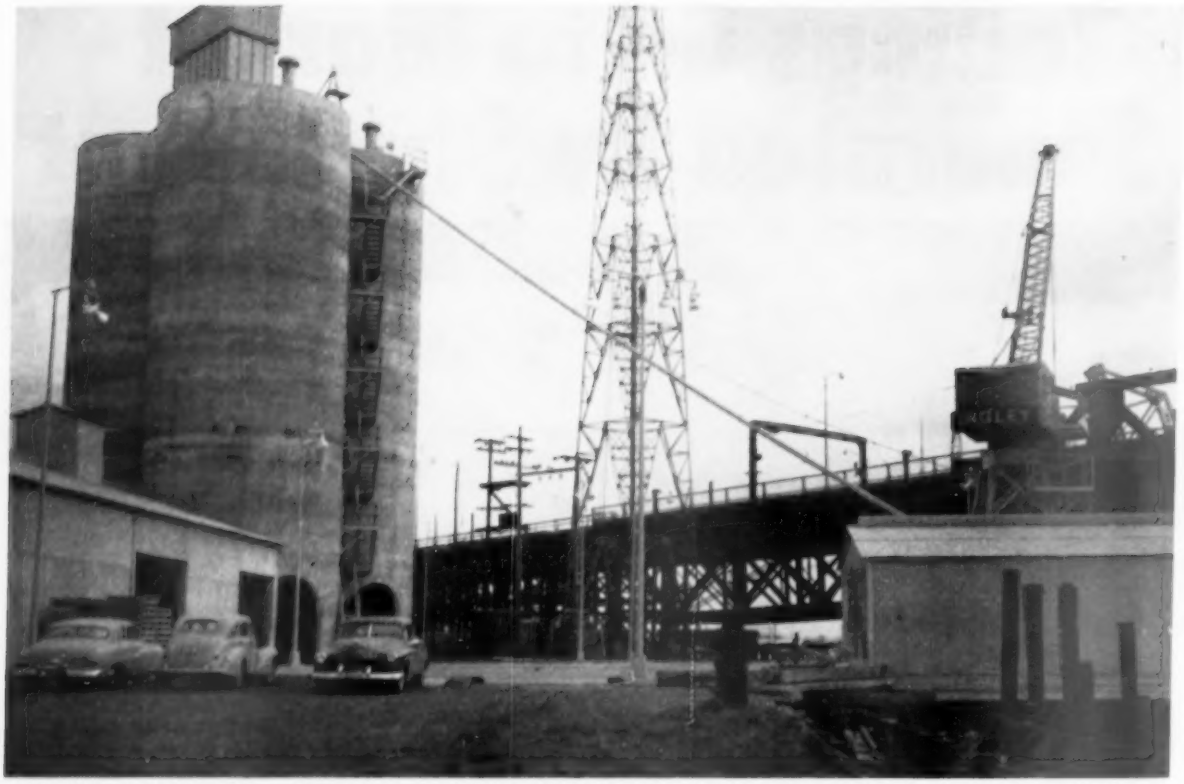
STURTEVANT

Dry Processing Equipment

The "OPEN-DOOR" to *lower* operating costs over *more* years

CRUSHERS • GRINDERS • MICRON-GRINDERS • SEPARATORS
BLENDERS • GRANULATORS • CONVEYORS • ELEVATORS

Enter 1426 on Reader Card



At the Olympic Portland Cement Co., Ltd., cement distribution plant in Seattle, Wash., a crane handles the portable cement pump when barges are unloaded

der its own brand. This producer is also in the sand and gravel and ready-mixed concrete business.

The use of distribution yards is growing in importance, with facilities costing well into the six figure brackets with some hitting close to a million dollars. Some yards handle only one or two types of cement whereas others have storage facilities for many. Some of the yards have packing facilities; others do not.

Tractor-semi-trailer bulk cement haulage unit operating out of Seattle, Wash., distribution plant of Permanente Cement Co.

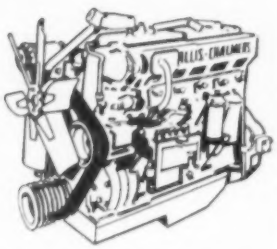
Equipment at the main plant is designed to speed up loading of trucks and closed railroad hoppers, and similarly to speed up loading of the truck at the distribution plant. With the delivery by truck carriers of about 38,000,000 bbl. per year estimated for 1957 in California, Oregon and Washington, or roughly 100,000 bbl. per day, the saving of a few minutes per truckload can be an important advantage. Modern truck haulers are interested in larger payloads. Aluminum bodies, single hoppers, plastic tops—these all add up to a larger payload.

The production of portland cement on the Pacific Coast can be divided into five zones: In southern California there is an inner zone with plants at Colton and Crestmore and roughly 60 miles east of Los Angeles. The outer zone comprises a group of cement companies that occupy the arc of a circle roughly 105 miles east and north of Los Angeles. This outer group has plants at Cushenbury, Victorville, Oro Grande, Mojave and Tehachapi. The third group is shooting for the San Francisco-Oakland Bay markets with plants at Permanente, Redwood City, San Juan Bautista, Davenport and San Andreas.

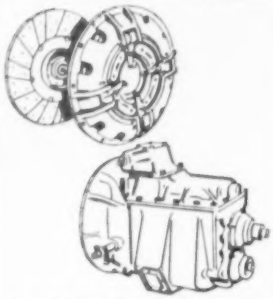
Look at the EXTRA WORK OUTPUT

the Allis-Chalmers TS-360 Motor Scraper gives you

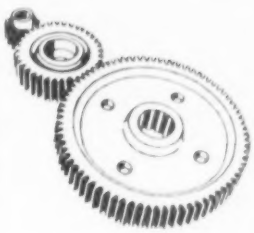
Here are some of the design features that put the TS-360 way out in front in steady performance, dependability and length of service life.



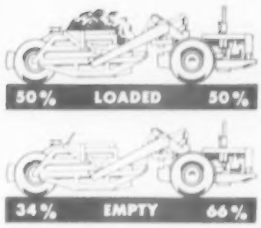
MORE USABLE HORSEPOWER. Allis-Chalmers diesel engine delivers 280 hp — 18.66 hp for each struck yard. This power gets the TS-360 away from the pusher fast . . . gives you speedier cycles, more trips per hour. In this engine, follow-through combustion holds effective working pressures to take advantage of better crankshaft leverage



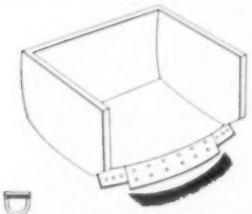
BIG-CAPACITY CLUTCH AND TRANSMISSION give fast, smooth operation under all job conditions. Clutch has air-actuated booster to reduce clutching effort and increase shifting efficiency. The heavy-duty transmission gives unmatched torque output in each gear range.



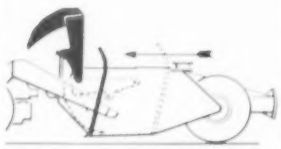
EXTRA-HEAVY FINAL DRIVES feature rugged differential assembly, carrier-housed drive shafts, final drive gears supported by large roller bearings and heat-treated drive axles. This long-life power train transmits maximum engine output for extra work volume, extra profit.



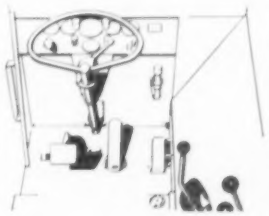
EXTRA TRACTION. The TS-360 motor scraper provides greater tractive effort, loading or traveling. Two-thirds of the empty weight is carried on drive wheels. Loaded weight is distributed equally between tractor and scraper wheels for better balance, increased flotation, safer hauling.



EASY-LOADING BOWL. Wide, low bowl design with curved bottom and offset cutting edge assures full capacity loads in less time. Curved bowl bottom "boils" dirt in, filling corners, heaping load with less spillage.



CONTROLLED DUMPING ACTION. Forward movement of ejector forces out load. High apron lift prevents material from jamming. This combination provides a continuous flow of material for a smooth, even spread.



POSITIVE STEERING. Two-stage selective power steering makes the operator's job easy . . . provides safe, feather-touch response and full maneuverability whether traveling at high speeds or in cut or fill.

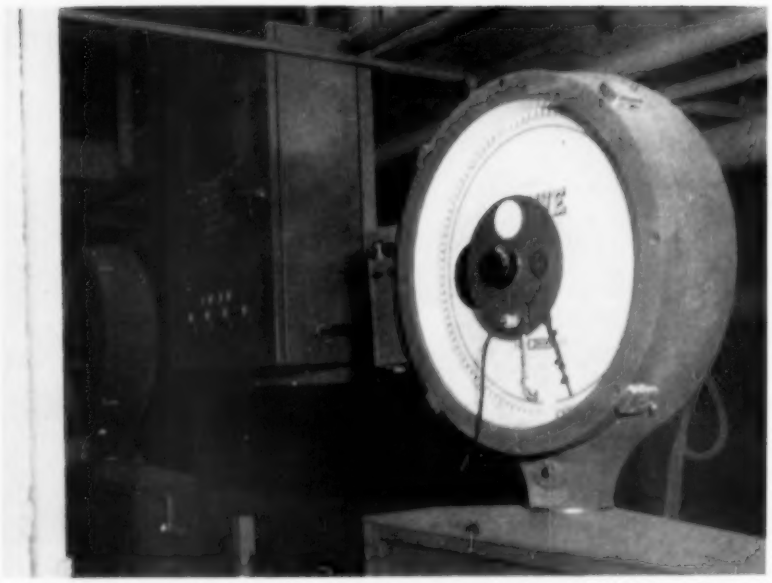
OPERATOR CONVENIENCES add to production, too. Easy-to-reach controls, full visibility, four-wheel air brakes, roomy platform, comfortable air-foam seat are some of the features that help operator get maximum output from the TS-360.

More and more TS-360's are coming into your area every day. Ask your Allis-Chalmers construction machinery dealer where you can see them in action. Remember, too — your Allis-Chalmers dealer stocks True Original Parts and offers factory-approved service methods and factory-trained servicemen for your convenience.

ALLIS-CHALMERS CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

Enter 1425 on Reader Card



One of the six dial scales for bulk truck loading at the Seattle yard of Olympic Portland Cement Co., Ltd.

The fourth group is at Gold Hill, Oswego and Lime, Ore. The fifth group is in Washington and British Columbia with plants at Seattle, Grotto, Concrete, Bellingham, Metaline Falls, Wash., and Bamberton on Vancouver Island. The Lime, Ore., and the Metaline Falls operations are, however, not included in this review insofar as distribution is concerned.

The picture in the Northwest may change somewhat due to the construction of a new plant near Vancouver, B.C. In southern California the situation may change due to the construction of new plants at Cushenbury and Mojave. The Cushenberry plant was originally scheduled to produce 2,500,000 bbl. per year, but it may be increased to 4,000,000. The Mojave plant is upping productive capacity from 7000 bbl. to 17,500 bbl. per day.

In the southern California group of plants, roughly 34,300,000 bbl. of production per year is indicated for 1957. The outer group accounts for approximately 25,700,000 bbl. and 8,600,000 bbl. for the inner group. The group in the Bay areas to the north indicate 19,000,000 bbl. capacity for 1957; Oregon 2,550,000; Washington 4,150,000; British Columbia an estimated 3,600,000 or approximately 63,600,000 bbl. for the West Coast. Of this total, roughly 60 percent is hauled by trucks; about 60 percent of the trucks are company-owned.

The following companies have one or more distribution plants as well as truck-loading facilities at the mills: California Portland Cement Co., Monolith Portland Cement Co., Calaveras Cement Co., Permanente Cement Co., Riverside Cement Co., Southwestern Portland Cement Co., British Columbia Cement Co., Ltd., and Olympic Portland Cement Co., Inc.

Santa Cruz Portland Cement Co., recently acquired by the Pacific Coast Aggregates, Inc., can distribute from its numerous and older service yards. However, Santa Cruz has no distribution yards per se, but trucks direct from the main plants; also Ideal Cement Co. at Redwood City and Jan Juan Bautista, Calif., and Gold Hill, Ore.; Oregon Portland Cement Co.; Northwestern Portland Cement Co.; and Superior Portland Cement, Inc.

Contract haulers handle about 40 percent of the total cement that is truck hauled. Some trucks operate around the clock and deliver to ready-mixed concrete plants with the truck driver having keys to the plant so they can unload at off hours. Truckers, especially the contract haulers, have trucks of all types, kinds and capacities. Triple-hoppered trucks were observed, but most are bottom dumpers with one and two hoppers. Small trucks holding from 40 to 100 bbl. have a place for some operators, especially those serving small concrete block plants or concrete pipe manufacturers who do not have storage capacity for handling larger haulage units. Some trucks have screw conveyors in the bottom of elongated hoppers so they can be unloaded at higher elevations than the bottom dumpers. In some units two parallel screw conveyors are used to unload cement from the truck. However, this type of hauling unit is on the wane. Airslides in trucks were in use in isolated instances. The unloading gates observed were of two general types. In one the canvas tube or hood is carried in the cab and attached to the hopper at the unloading site. These are preferred if a truck is travelling on roads over rolling terrain during the wet season for often pools of water collect at the low section of the highway and water would wet the canvas connector. With the second type, the canvas tube folds up and is inside the lower section of the hopper. Adequate safety devices are used and leakage from the truck in transit is not a problem.

Some of the cement companies, with their own equipment, travel roads over the high Sierras delivering from the Bay group to Reno and Hawthorne, Nev., where large and important military installations are in active service. Trucks going over the high snow-swept summits have dual drives for added traction. At one time port-

Smaller capacity cement truck used by contract hauler to serve interior market requiring smaller volume shipments

The 101-SE is a highly portable plant. The frame is extra strong to hold rigid alignment of all equipment and drives. A rocker beam with full width axles supports most plant weight. Four wheels, each with dual tires, oscillate separately to compensate for rough terrain.

Big Production at your Fingertips with the New AUSTIN-WESTERN push-button controlled Diesel-Electric 101-SE

Here's a high output, mobile gravel plant that combines top efficiency with modern ease of operations and low maintenance. It is DIESEL-ELECTRIFIED, PUSH-BUTTON OPERATED—a triumph in crusher engineering.

All plant components except jaw and roll crushers are electrically operated in this closed circuit plant. All operations are powered with individual electric motors through short coupled V-belt drives, instantly controlled from the operator's platform. Chains, idlers, sprockets and clutches, normal cost items on mechanical plants, are eliminated.

Regardless of load, all components operate at peak efficiency at all times, delivering top production and accurately sized aggregates. A single convenient push-button station controls the plant.

See your nearby Austin-Western distributor . . . or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio, for illustrated booklet.

COMPARE . . . then you'll specify AUSTIN-WESTERN

Welded steel plate crusher frame for high strength without weight of cast steel frame.

Inclined positive-throw type vibrating screen.

All bearings are anti-friction type.

Machined steel toggle plate for absolute protection of crusher.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

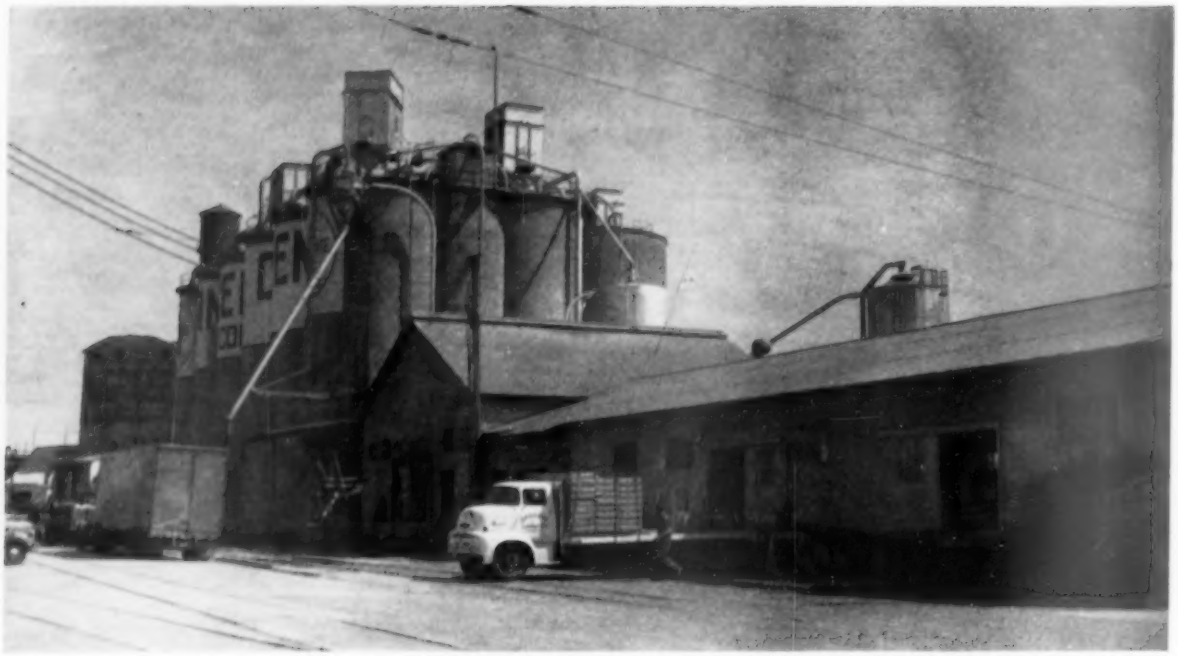
SEE THE 101-SE PLANT AT THE ROAD SHOW, BOOTH NO. 702, AREA D.

AUSTIN-WESTERN
CRUSHING, SCREENING AND WASHING EQUIPMENT

BALDWIN BLH LIMA HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation
Hamilton • Lowry Hydropress • Madsen • Pelton • Standard Steel Works



Portland, Ore., cement distribution plant of Permanente Cement Co.

land cement was delivered to this location in large canvas bags holding about 10 tons of cement. At the unloading site a crane picked up the bag, and an operator untied the neck of the bag located at the bottom, discharging the cement.

Haulage of cement by trucks is not all confined to bulk units for flat racks are available for the sacked trade. Practically all sacked material was packed in paper bags although in the Northwest a very small percentage of the total was still going out in cloth bags to islands in the Puget Sound areas where rehandling several times was necessary.

Loading of a truck and/or its trailer at the mill, and at the distribution plant, varies widely. Some weigh the truck as it is loaded, after which the "train" pulls ahead and onto the scale platform and the trailer is similarly loaded. Some weigh the cement in batch hoppers and drop the weighed material into the truck or trailer. Others check-weigh on a separate set of scales after the unit has been loaded; check weighing also was observed after both types of weigh loading. In one instance truck and trailer could be both loaded and weighed with two scale platforms available; one for the truck and one for the trailer. Each platform had its indicating scale dial. After the two units were loaded they were check-weighed from a third totalizer dial and without the haulage units moving off the scale platforms. Where a system like this is used, it is important that the distance between the truck and its trailer for all units should be about the same, for if a truck with a long connecting tongue to its trailer came on the scales, the rear wheels of the trailer might not be on the platform. Multiple truck loading facilities are also used at some plants; one had seven places for trucks to load. Huron-Fuller Airslides appeared to be favored in truckloading.

British Columbia Cement Co., Ltd.

Most of the normal output of the British Columbia Cement Co., Ltd., plant at Bamberton on Vancouver Island is towed into the Vancouver, B.C. areas in covered barges. Some of it is now distributed direct to ready-mixed concrete plants, concrete pipe, and concrete block plants located on the waterfront.

However, a new cement distribution plant is to be built in Vancouver. Work will soon be underway on the first stage of construction, and the plant is scheduled for completion by May or June, 1957. There will be four reinforced concrete silos, each having a capacity of 10,000 bbl., or a total of 40,000 bbl. of cement. It will be serviced with self-unloading bulk cement barges delivering cement from the Bamberton cement mill direct into the silos in Vancouver. The self-unloading barges are equipped with Fuller-Kinyon pumps and Airslides, and the distribution plant will be similarly equipped. Both truck and rail movement of cement in bulk as well as sacked products will be handled from this plant. L. James Glassford is the branch manager at Vancouver.

Seattle Distribution Plant Olympic Portland Cement Co., Ltd.

One of the latest and most modern distribution plants on the West Coast is that of Olympic Portland Cement Co., Ltd., erected on the Seattle waterfront. The cement mill is located near the waterfront at Bellingham, Wash., some 90 miles to the north. From the Bellingham plant, 77 percent of the output is in bulk, 19 percent in paper bags and four percent in cloth bags. The latter is for the island trade in the Puget Sound area where rehandling is rough and compounded. About 20 percent of the bulk is hauled by a 6500-bbl. covered barge that is towed to the Seattle yard. In 1955, 34 percent of the bulk total was handled by trucks, none of which are company-owned. At Bellingham, four company-owned bulk railroad cars are loaded and delivered a short distance to the waterfront for barge loading. An 8-in. Fuller-Kinyon pump moves the cement to the barge. The water haul to Seattle, including loading and unloading, is as follows: 16 hr. to load; 20 hr. to unload and the contract

JOY TWM-5 CHALLENGER DRILL

the BIG DRILL that has EVERYTHING

80° DRILLING RANGE

The Joy TWM-5 Challenger will drill at any angle between vertical and 10° above horizontal, making it applicable to almost any range of drilling required.

EXTREME MOBILITY

The TWM-5 is self-propelled on either rubber tires or crawler treads. It is driven on each side by a reversible piston type air motor, can turn in its own length, and can move into and out of most "tight" spots.

REMOTE CONTROL

All functions of operation, both drilling and moving, are controlled from the operator's station on the frame, directly over the left front wheel. Three hydraulic jacks provide stability while drilling.

TM-500 DRILL

The drilling machine on the TWM-5 is the JOY TM-500, a 5¼" piston drill, which has proved itself in quarry, construction, and mining work as the first and still the leader in the big drill field. The TM-500 is mounted on an extra sturdy mast which is raised and lowered hydraulically.

ADDITIONAL FEATURES

Optional features available on the TWM-5 are a cab, designed for the best in operator comfort and protection, and a dust collection system.

Check today on the Joy TWM-5 for your drilling operation. Whether you drill vertical holes or toe holes, it will fit your program and give added rock tonnages from the day it first goes to work. Write for complete information today to **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Joy TWM-5 drilling deep holes (50' to 100') in granite in a southeastern quarry.

Write for FREE Bulletin 19-27

Consult a Joy Engineer

for AIR COMPRESSORS • ROCK DRILLS
ROCK BITS • PORTABLE HOISTS • FANS
HYDRAULIC HOSE & COUPLINGS

W&D R5645-13

JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS
FOR OVER HALF A CENTURY

Enter 1424 on Reader Card

A 6500-bbl. capacity barge being unloaded at the Seattle yard of Olympic Portland Cement Co., Ltd.

tugboat can make two round trips per week. Paper bag shipments go to Alaska and are handled on pallets between the railroad car and the barge. The Bellingham plant has a capacity of 1,000,000 bbl. per year.

New truck loading facilities at Bellingham have been installed which include the use of two-part scales, one for truck and one for the trailer. Airslides deliver to a surge bin equipped with Bin-Dicators, thence to a bucket elevator to Airslides and to trucks and cars. Push-button controls are featured. Trucks can be reweighed on check scales. The installation will materially speed up loading time.

The Seattle distribution plant has four reinforced concrete silos each holding 10,000 bbl. Barges are unloaded by a portable 8-in. Fuller-Kinyon pump. An Insley crane, mounted well above the dock elevation, handles the pump.

Packing is done on an elevated, four-tube, St. Regis packer that receives its feed from Airslides. The bin ahead of the packer is equipped with Bin-Dicators. For removal of tramp iron, the cement, before sacking, passes over a 2- x 4-ft. Selectro screen. A forked Allis-Chalmers lift truck is available for handling empty sacks or sacked cement on pallets.

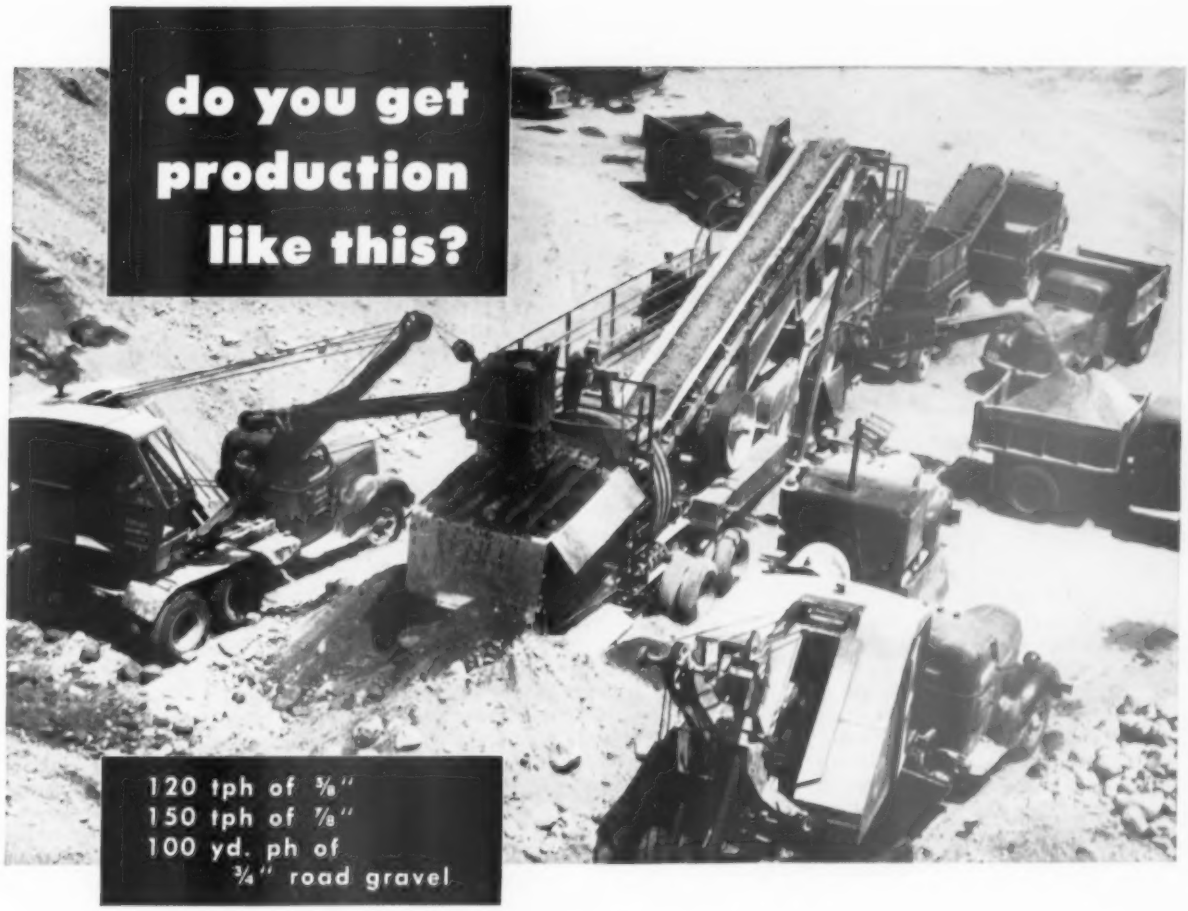
A novel feature of the distribution plant is the use of twin scales; one for the truck and one for the trailer. Each of the scale platforms has its individual dial Howe scale unit, with a third Howe dial scale as a totalizer. There are two loading runways, each equipped as above (six dials in all). The trucks and trailers are loaded by means of 14-in. Fuller-Huron Airslides; the St. Regis packer is supplied by 8-in. Airslides. A load of 110 to 120 bbl. can be handled in about 15 min. The 14-in. Airslides use two Roots, Connersville rotary blowers powered by Westinghouse motors and equipped with Air-Maze Corp. filters. Mercoid valves are ahead of screw-type valves on the air supply to the Airslides. A small two-stage compressor is available to handle the Norblo dust collectors and miscellaneous controls.

The truck scales are 28 ft. long and the trailer 14 ft. with about 9 ft. of space between. Air for the 8-in. F-K pump is supplied by a Fuller rotary compressor equipped with Cycoil, American Air Filter Co., Inc., filters.

The plant, built by Kuney-Johnson Co., and designed by Worthington & Skilling of Seattle, is located near the Spokane Avenue bridge and in the heart of the industrial area. The office is a concrete block structure built inside the main unit. Ronald Hillis is foreman of the plant. H. M. Krabbe is in charge of this plant as well as the Bellingham operations.

Permanente Cement Co.

Permanente Cement Co., Oakland, Calif., has distribution plants at Portland, Ore., Seattle and Pasco, Wash., Anchorage and Fairbanks, Alaska. The plant at Long Beach on the waterfront is inactive. Sacking is conducted at all plants.



"Lippmann Portable Dual Crushing Plant cannot be matched" says Ontario contractor

Glenn S. Coates, president of Fowler Construction Co., Bracebridge, Ontario, reports on the performance of their Lippmann dual portable crushing plant — a story of real output from several pits — best told in his own words:

"From the first of June to the end of December, we have crushed 91,239.3 tons and 35,501.5 yards of gravel in different locations. It can be seen that we have had considerable moving time. The time lost for moves is as small as any portable we have seen.

Our production has averaged 120 tons per hour of ⅜" materials, testing 55-60% stone, and 150 tons per hour of ⅞" materials, testing 45-50% stone. Both of these items are Government test, mainly for asphalt use. Our production of ¾" Township road gravel, testing 50% upwards of stone, has averaged 100 yards per hour. We are pleased with the output, *as in every case it has been higher than the Lippmann people estimated.*

We consider our plant the largest portable plant in one unit in the Province of Ontario. The 12" x 36" jaw, and 40" x 20" rolls with the 4' x 12' screen and 30" belts throughout cannot be matched in one unit by any other make.

Our production figures *are not overstated, or based on our best day's run.* They are taken on average from many pits and conditions and in very few cases were there any days with lower amount than those quoted herein.

The plant maintenance on the Lippmann is, we believe, as low or lower than any plant crushing under similar conditions. We have no hesitation in recommending the Lippmann equipment to any prospective purchasers and we will frankly discuss its merits with anyone referred to us."

Owners of Lippmann Portable Crushing plants cite other reasons why they like their Lippmann plants, such as the balance between all the components that eliminates lost motion and saves power . . . the good stability and arrangement that makes them so mobile . . . the fact that they require no blocking or jacking for quick and easy set-up. Also mentioned is the exceptional performance of the individual components, such as the famous Grizzly King or Rock Ram jaw crushers, superior roll crusher secondaries, Screen-All screens and Ever-Seal conveyor idlers that never need greasing.

Those who want to know more about the kind of performance Lippmann machines turn out — whether it's crushers, feeders, screens or complete plants — can learn by contacting a local Lippmann Dealer, or Lippmann Engineering Works, Inc. direct at 4605 West Mitchell Street, Milwaukee 14, Wis., U.S.A.

Enter 1423 on Reader Card

Bulk cement haulage units leaving Permanente Cement Co., main plant in California

Permanente has probably the largest investment in distribution plants because cement is hauled by boat to large yards in Portland and Seattle as well as to Anchorage, Alaska, and other Pacific Island points. A small yard is maintained at Pasco in eastern Washington with the cement hauled in barges from Portland up the Columbia river.

The Seattle yard has 120,000 bbl. of storage with facilities for sacking. Eight silos hold 10,000 bbl. each and one holds 30,000 bbl. with star bins. Barges, rebuilt LST's, holding 18,000 bbl., are loaded here and towed to Anchorage by contractors with the trip taking nine days, one way. Roughly 80 percent of the local business out of this plant is in bulk and of that, 80 percent is trucked, 20 percent by rail, and the remainder sacked. The company does not have any of its own bulk trucks at this site. Of the sacked trade, about one percent is in cloth bags.

Trucks are weighed as loaded and a second set of scales is being installed. It requires about 10 min. to load a 120-bbl. haulage unit.

Snow is not a problem in the Seattle area although slides are sometimes bad in the Cascade Mountains in the east. The normal marketing area is west of the Ephrata and Moses Lake sections in Washington. Bulk cement into the Tri-City area (Pasco-Kennewick-Richland), an important atomic energy site, is served by barges from the Portland, Ore., yard.

Cement is delivered to the plant by the company-owned "Silver Bow". This ship has 10-in. Fuller-Kinyon pumps. A tunnel in the hold is equipped with a drag that delivers to the pump.

The plant on East Marginal Way has available facilities of the Glacier Sand and Gravel Co., an affiliate, for reloading sand and gravel, ready-mixed concrete, etc. Ed Kendall is district sales manager for Permanente.

Permanente's Portland, Ore., distribution yard was built and formerly was owned by the Santa Cruz Portland Cement Co. Deliveries of cement to the many important dams built in the Northwest in recent years were handled by the Portland yard; McNary, Detroit, The Dalles—to name a few. There are 18 silos in the group; one of 30,000-bbl., twelve of 5000-bbl., and five of 1200-bbl. capacity star bins. Sacking is done at the plant.

Airslides deliver cement to trucks and to the sacking machines. It requires only 8 to 10 min. to load an 80-bbl. truck. The trucks are weighed as loaded.

The distribution plant is located on the east bank of the Willamette river and in the heart of the industrial section. Railroad cars are loaded from the plant and a considerable volume of the sacked material goes out in this manner. Two ready-mixed concrete plants are within sight of the distribution yard. All deliveries are by contract haulers or in customers' own trucks. Barges are loaded here and towed up the Columbia river to the distribution plant at Pasco, Wash. A. B. McLeod is in charge of the plant.

Shipments of cement from the main plant of the Permanente Cement Co. in California takes on considerable importance when it is considered that it is one of the largest cement plants in the world, having a capacity of 8,500,000 bbl. per year. Fifty percent of the material is moved by truck. Shipments to Portland, Seattle and other ports must be trucked from Permanente to the company's Redwood City, Calif., loading plant, a haul of 18 miles. When a run is on to the Redwood City plant, some 250 dual haulage units load per day; 140 of these to Redwood City and 110 for other outlying sections. Ninety percent of the cement shipped from the plant, including hauls to Redwood City, leaves in trucks. Some trucks run up as much as 11,000 miles per month and shipments are made for a radius of 300 miles from the plant. A considerable tonnage has been trucked to Hawthorne, Nev., a haul of 384 miles, one way, an exceptional haul. With the addition of a new loading station this year, the company now has seven stations for loading trucks in addition to carloading facilities. The company operates 32 tandem bulk units and four flats. Both Peterbuilt and Kenworth tractors are used. Cement is weigh-batched to the trucks and then check-weighed.

Truck bodies are of the single-hopper type with single axle drives. The bodies are of aluminum. The lightweight and the single-hopper design permits higher payloads. R. R. Little is superintendent of transportation.

New York Group Meets

EMPIRE STATE SAND, GRAVEL AND READY MIX ASSOCIATION, meeting October 19 at Syracuse, N.Y., registered 114 people representing 47 active, 20 associate and 12 non-member firms. Daniel J. Howe, Jr., public relations director of F. W. Dodge Corp., predicted construction awards for the next five years as maintaining their current favorable status. Other addresses were by John Donovan, Springfield, Mass., estimating requirements and supply of portland cement; William Murray, Motor Vehicle Bureau, discussing truck lighting regulations; and H. V. Owens, chairman of the Joint Highway Industries Committee, stressing the importance of the $500 million bond issue to the sand, gravel and ready-mixed concrete industries.

John W. Johnson, superintendent, New York State Department of Public Works, was dinner guest speaker. Others appearing on the day's program were Vic Berg and John Walker, presenting new information on front-end power-take-off mixer equipment; and Hilton Scribner, Carl Frederick and Bud Kirwin, participating in a workmen's compensation panel.

at Pacific Building Materials, Portland Oregon . . .

UP GOES ANOTHER SAND PREP

No. 8 in a series of steady WEMCO producers

1956 addition to this Portland company's sand recovery operation is the 36-inch Wemco Sand Preparation Machine being installed above. It has an outstanding performance record to live up to! For instance, since the first of 7 similar Wemco units went into operation in 1948, plant manager Howard Hamlin reports that to date **"Only $33 worth of spare parts have been ordered."** But the real story of Pacific's continued use of Wemco Sand Preparation Machines lies in their ability to invariably produce specification materials under all feed conditions. Wemco's slow-speed, multiple-pitch spirals, operating in a large, quiet pool, insure the recovery of the desired fine (150 mesh) sand without a sacrifice in raking capacity. This unbeatable combination of low-operating costs and specification sand spell profits for Pacific on every one of their 8 Wemco units. They can do the same for you.

Send Wemco your sand problems for profitable solutions.

WEMCO
WESTERN MACHINERY COMPANY

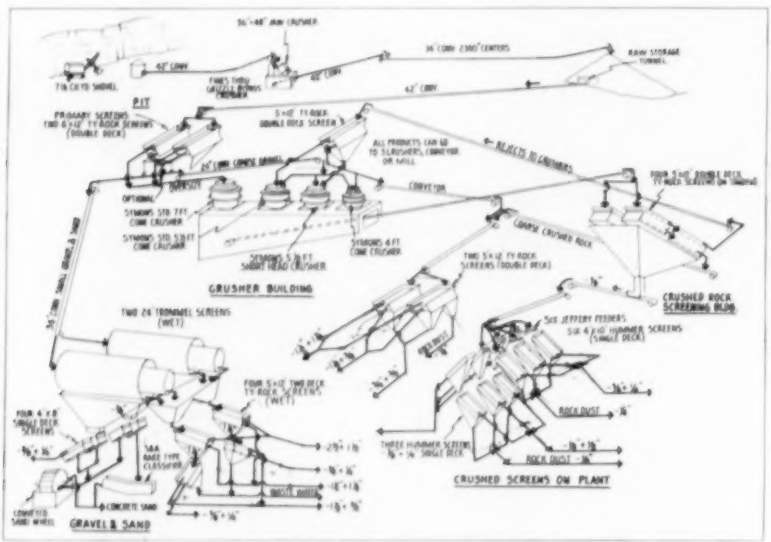
650-J FIFTH STREET • SAN FRANCISCO 7, CALIF.

Representatives in principal cities of the United States and Canada and in major countries throughout the world.

Enter 1436 on Reader Card

Irwindale, Calif. plant of Consolidated Rock Products Co., showing intermediate screening section, to the right, and conveyor to final screening and washing section, to the left

By WALTER B. LENHART



Flow diagram of Consolidated Rock Products Company's Irwindale plant

At L. A. Convention

There'll Be A Real Visitor Day

TWO BIG SAND AND GRAVEL PRODUCTION AREAS in the Los Angeles and contiguous areas are located to the northeast and east. Among the plants that might have points of interest to convention visitors are the following:

The Largo plant of Consolidated Rock Products Co. has one of the few 54-in. Nordberg gyradisc crushers in operation. It is preparing a manufactured sand that is blended into crusher base material.

At the Claremont plant of the same company, a soft stone eliminator, that is essentially a rotary drum, utilizes gravel tumbling in the unit to break up the soft stone sufficiently to meet requirements.

The Orange County plant of Consolidated Rock Products Co. uses a Hardinge scrubber as a part of the gravel washing process.

This company also operates a new Noble portable ready-mixed concrete batching plant stationed at the Montebello yard to the east of Los Angeles. The plant is moved about in the marketing areas of the company to augment its stationary plants.

(Continued on page 112)

Choice of 304 different buckets for Rehandling, Wide Rehandling, General Purpose, Hard Digging or Dredging

Why such a big choice?

So you can have the bucket that will fit your job whether it's rehandling sand or large pieces of limestone.

So it will fit your crane whether it's a small truck-mounted type or a big crawler.

So it will fit your present cable.

All these add up to 304 different possible combinations.

To select the proper size, weight and type bucket for the most efficient and profitable operation of your crane usually requires the service of a competent distributor's or manufacturer's sales engineer.

See your nearest Blaw-Knox distributor today.

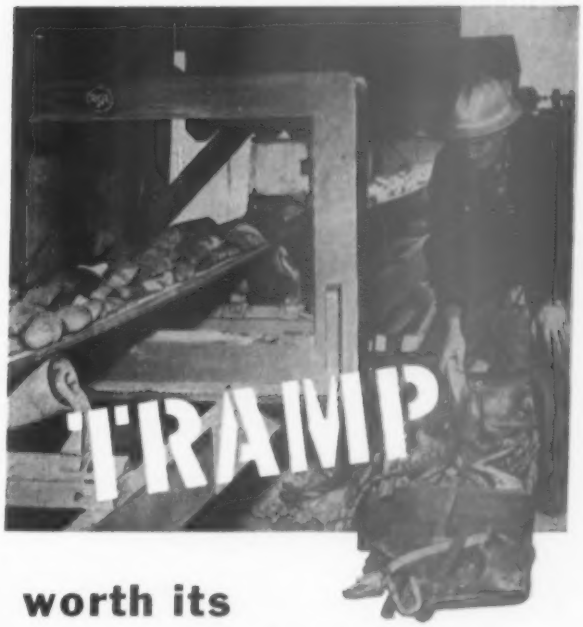
Send for **BULLETIN 2254-R1**

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Pittsburgh 38, Pa.
Offices in Principal Cities

BLAW-KNOX

BLAW-KNOX CLAMSHELL BUCKETS

Enter 1473 on Reader Card



worth its weight in GOLD!

Take a look at this tramp metal the RCA Metal Detector brought to light at the Union Sand and Gravel Company in Spokane, Wash.—Scraper bucket teeth, chain and repair links, tooth adapters, U-bolts, cable clamps, wire rope, iron pieces and assorted nuts and bolts. The metal's value as scrap is nominal, but the potential damage to expensive crushing machinery makes it worth its weight in GOLD! Says Mr. John W. Murphy, partner in this firm, "We surely wouldn't want to run our plant for even five minutes without the Detector."

All kinds of tramp metal—both magnetic and non-magnetic—are discovered automatically by the RCA Metal Detector. Wired to sound an alarm, spray-mark the metal area, or stop the conveyor when trouble threatens, the Detector prevents damage to crushers, pump liners and sizing screens . . . prevents downtime and repairs from cutting into profits . . . quickly pays for itself. Why not find out more about this valuable production aid? Use handy coupon.

MARK OF RCA QUALITY
ELECTRONIC
METAL DETECTOR

Radio Corporation of America
Dept. N-206, Building 15-1, Camden, N.J.
In Canada: RCA VICTOR Company Limited, Montreal

☐ Please send me complete information on the RCA Metal Detector for use in quarrying and mining.
☐ Have RCA field representative contact me.

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Enter 1472 on Reader Card

Sun Valley, Calif. plant of Consolidated Rock Products Co.

One of the world's largest and a showplace of Consolidated Rock Products Co. is its Irwindale plant. It has a capacity of 1000 t.p.h., producing washed sand and gravel, and crushed gravel that is kept separate from the natural. A feature of the pit operation is the pendulum conveyor and a 4000-ft. field belt to a large capacity surge pile. A 7½-cu. yd. shovel is operated in the pit. Large tonnages are shipped by so-called "telescopic" trucks (and other types) from this plant. One of the few 7-ft. cone crushers in any sand and gravel plant is in service. The flow diagram indicates the more important plant items. The long belt installation was described in ROCK PRODUCTS, October, 1950, p. 101. A Conveyor Co. sand wheel is a part of the sand recovery system. This plant serves the eastern sections of Los Angeles and the lush citrus area in the general vicinity. Rail shipments to the company's many distribution and ready-mix plants in southern California are also made from this plant, which is scheduled for a tour by the convention visitors. The plant has the highest production per man-hour of any of Consolidated plants.

Serving the western sections of Los Angeles and contiguous territories, the Sun Valley plant has a capacity of 850 t.p.h. A pendulum conveyor is used in the pit. A complete rearranging of the crushing facilities is under way and will include the installation of two of the Hewitt-Robins "Hi-G," 5- x 20-ft., double-deck screens. A 7-ft. Symons cone is in operation. Sand is recovered from company-made sand wheels with fine sands reclaimed by a 15-ft. dia. Dorr-Oliver bowl dewatering unit, one of the few in use in southern California for this purpose. Both truck and rail shipments are made. Crushed gravel and natural gravel are kept separate. Ready-mixed concrete is batched from a push-button control set-up of high capacity.

Service Rock Co., Corona, Calif., operates a Conveyor Co. portable ready-mixed concrete plant. This unit includes a portable cement silo and truck hopper, and a radial stacker mounted on rubber-tire wheels.

Triangle Certified Concrete, Inc., San Bernardino, Calif., and the Tri-City Transit Mix Concrete Co., Redlands, Calif., operate Travel batchers.

At Century Rock Products plant in El Monte, and the new Orange County plant of Star Rock Products, liquid cyclones for fine sand recovery are being used. Both plants use Duroclones.

Heavy media separation units are in service at the Southern Pacific Milling Co. plant near Santa Maria, Calif., and the Kaiser Aluminum and Chemical Co. plant near Salinas. The former is a sand and gravel operation, and the latter removes granite and other silica bearing rock from dolomite. Both plants are between Los Angeles and San Francisco.

El Monte Plant Graham Bros.

Many visitors to the February, 1957 meetings of the N.S.G.A. and N.R.M.C.A. conventions in Los Angeles will recall the El Monte plant of Graham Bros., for ten years ago it was one of those visited during the official trips. Luncheon was served at the plant for the many guests.

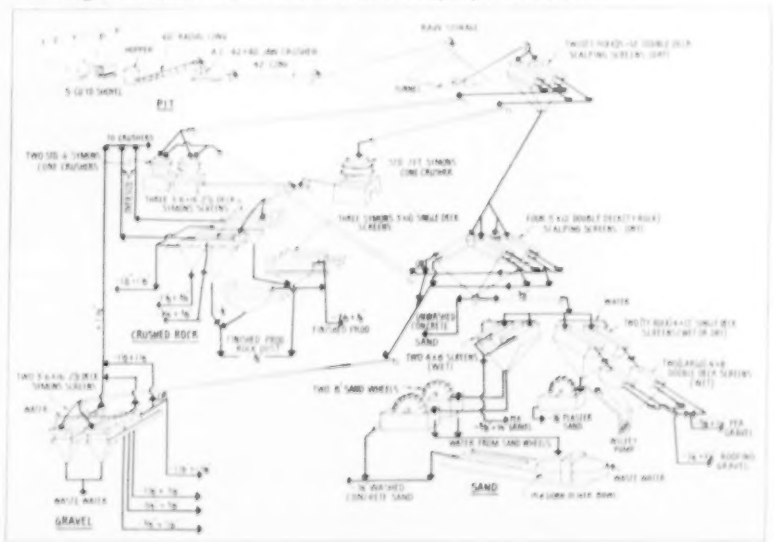
The plant is one of the largest producers in southern California. It is a very efficient and flexible plant with a high percentage of the output shipped in company-owned trucks. "Revolver" cranes do a considerable part of the truck and miscellaneous loading. However, three truck tunnels are available for direct loading of trucks. The tandem Euclids used in the pit are novel and consist of a Euclid bottom-dumper towing a bottom-dumper of the same type with the two units hauling a pay-load of 66 tons.

Equipment, El Monte plant:

1 Bucyrus-Erie 120-B shovel, 6½-cu. yd. bucket
5 Euclid tandem bottom-dump units hauling 66 tons per load
24- x 36-in. Traylor jaw crusher
Jeffrey vibrating grizzly
6- x 16-ft. Simplicity screens as well as other sizes

(Continued on page 118)

Flow diagram of Consolidated Rock Products Company's Roscoe plant



Why Waste Production and Money

every time you change crusher setting?

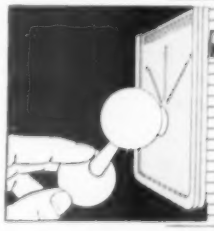
get **One-Man, One-Minute PRODUCT CONTROL**

FORTY-FIVE minutes — an hour — two hours — yes, even four hours — that's how long it takes to change size setting on some gyratory crushers. Translate that lost time into tonnage, the tonnage into dollars — and you can readily see the tremendous profit advantage in *one-man, one-minute product control* — available only with this truly modern *Hydrocone* crusher.

Changing crusher adjustment to precise product size is a flick of a switch operation in the *Hydrocone* crusher. Compensation for wear is equally fast—equally simple. And if the *Hydrocone* crusher stops under load, flick a switch and you're back in operation.

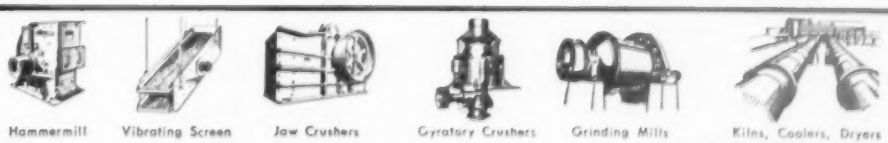
For complete information, see your A-C representative or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin. Ask for Bulletin 07B7145B.

Hydrocone is an Allis-Chalmers trademark.



A-C ALLIS-CHALMERS

ALLIS-CHALMERS A-4987



Hammermill | Vibrating Screen | Jaw Crushers | Gyratory Crushers | Grinding Mills | Kilns, Coolers, Dryers

Enter 1435 on Reader Card

the BUCYRUS ERIE 30-B

. . . sets new performance standard in the 1-yd. class

Here's a brand new 1-yd. profit-maker for you — the Bucyrus-Erie **30-B**. Offered with either crawler or rubber-tired carrier mounting, it's readily convertible to various front ends — shovel, dragshovel, dragline, crane, or clamshell.

New . . . fast . . . quality-built, the **30-B** is just what you need in a 1-yd. machine to speed stripping and loading operations. Check the brief rundown of features given below; then request full details.

Matched to your needs

- Your choice of diesel, gasoline, or single-motor electric power. Direct or torque converter drive.
- Five easily-converted front ends — shovel, dragshovel, crane, dragline and clamshell.
- Your choice of five crawler mountings *plus* Transit Crane on rubber-tired carrier.
- Extra equipment for special jobs — independent propel, third drum unit, and cathead.

Designed to out-perform

- Easy, air control for smooth, big-output working cycles.
- Easy to service — automatic lubrication of many parts.
- Large, cool-running clutches and brakes.

Built to outlast

- Six conical hook rollers distribute loads evenly between upper and lower works to save wear.
- Five main operating clutches are alike, with parts interchangeable.
- Specially-processed steels add strength and wear resistance.
- Strong, rigid cast revolving frame withstands twisting and bending stresses, maintains machinery alignment.

199E56C-a

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Gentlemen: Please send me details on the new 30-B.

Name _____

Organization _____

Address _____

City _____ State _____

199E56C-a

Send for complete facts NOW!

FREE! INFORMATION ON

ADVERTISED PRODUCTS • NEW PRODUCTS • LITERATURE • CATALOGS

Use the

self-addressed **READER SERVICE CARD** postage-free

BELT CONVEYORS — Barber-Greene Co. has prepared a 4-page brochure, "Simplifying Your Selection," listing basic points easily overlooked in belt conveyor selection. "Ways to Reduce Your Costs" condenses information on Barber-Greene's complete line of equipment.

Enter 700 on Reader Card

BITS—Vascoloy-Ramet Corp., has released Catalog V-R 486: "V-R Bits and Blanks." Featured are "long body" bottoming-type percussion bits and carbide blanks for bottoming drive rods.

Enter 701 on Reader Card

BLOCK EQUIPMENT—Besser Co. has prepared three booklets on Vibrapac block. Bulletin No. 108 "Build Beauty with Vibrapac Block," contains photos of homes and offices featuring the block, and a supplementary folder describes production facilities used to make Vibrapac block machines. A pocket-size brochure features homes constructed of Besser block.

Enter 702 on Reader Card

CONCRETE FORMS — Florida Division, Food Machinery and Chemical Corp., has issued Bulletin 200 (A.I.A. File No. 4-D) on Form-Crete steel forms for precasting reinforced or prestressed concrete, describing the Formcrete system, outlining use of forms and accessories, and giving construction details.

Enter 703 on Reader Card

CONVEYORS—A. B. Farquhar Division, The Oliver Corp., has released Bulletin 801, detailing the Farquhar line of "Roll-Free" wheel and roller type gravity conveyors, including facts on curves and accessories available for setting up a conveying system.

Enter 704 on Reader Card

CRUSHERS—McLanahan & Stone Corp. has brought out Bulletin RMRD-56, providing data on Rockmaster single roll crushers. A parts list with drawings and information on applications also are features.

Enter 705 on Reader Card

CUTTING EQUIPMENT — Air Reduction Sales Co., a division of Air Reduction Co., Inc., announces Form ADC 839A covering its complete line of metallic powder cutting equipment for cutting and washing stainless steels, other high alloy steels and cast iron.

Enter 706 on Reader Card

DISTRIBUTION ANALYZER — The Sharples Corp. has published Bulletin 101 discussing the Sharples Micromerograph for particle size distribution analysis. The instrument, developed for use in conjunction with the Sharples Super Classifier, provides rapid particle size distribution determinations of powdered materials.

Enter 707 on Reader Card

DUST CONTROL—Koppers Company, Inc., Metal Products Division, has issued Bulletin 105 on Series 12 Aeroturn dust filters; Bulletin 304 on Model D Aeroturn dust filters; Form 970-M42 on the Koppers mechanical collectors; as well as a 15-page booklet covering Koppers electrostatic precipitators which includes a section on cement-plant application.

Enter 708 on Reader Card

ENGINES—White Diesel Engine Division, White Motor Co., has prepared Bulletin 108 featuring Superior Model 40 stationary diesel engines—four cycle, 6 and 8 cylinder engines naturally aspirated or supercharged, 215 to 1025 b. hp. continuous. Supplemental bulletins include: 1081, featuring naturally aspirated engines; 1082, featuring supercharged engines; and 1083, describing improved Model 40, stationary, portable and trailer-mounted engine-generator sets.

Enter 709 on Reader Card

HOUSE PLANS — Besser Co., announces distribution of their new Block Masonry Homes Plan Book, which includes 225 house designs.

Enter 710 on Reader Card

HUMIDITY CONTROL—The Bristol Co. announces Bulletin H1009 which describes and illustrates the company's complete line of humidity recording and controlling instruments, as well as accessories. Data are given on indicating, recording, and automatically controlling wet and dry bulb instruments, and psychrometers (direct reading type).

Enter 711 on Reader Card

KILN INSTRUMENTS—Leeds & Northrup Co. has brought out Folder N-0720 (1), "Modern Practices in Rotary Kiln Instrumentation," explaining how L&N instruments and controls are used.

Enter 712 on Reader Card

LABORATORY EQUIPMENT — Soiltest, Inc. has released a folder covering Model L5 and Model L3, Blue M Single-Wall gravity ovens, as well as a four-page brochure which catalogs its sieves, sieve shakers and sample splitters.

Enter 713 on Reader Card

LIFT TRUCKS—Barrett-Cravens Co. has prepared Bulletin 555-1 on its single stroke lift trucks.

Enter 714 on Reader Card

MATERIALS HANDLING EQUIPMENT —Allis-Chalmers Manufacturing Co. has released Form MS-1138-756, "Facts, etc.," covering selection, maintenance and use of tractor shovels, motor scrapers, graders and crawler tractors.

Enter 715 on Reader Card

USE THIS READER-SERVICE CARD for additional information on:

ADVERTISED PRODUCTS • LITERATURE • NEW PRODUCTS • CATALOGS

READER-SERVICE CARD

RP-1-57

ROCK PRODUCTS
79 W. Monroe St.

JANUARY, 1957
Chicago 3, Illinois

Cannot be serviced after March 1, 1957 postmark.

Please print or type

Name _____ Position _____

Company (In Full) _____

Company Address _____ City _____ Zone _____ State _____

MAIN PRODUCT OF PLANT _____ **CAPACITY** _____

[THIS INFORMATION WILL HELP US GIVE YOU ALL MORE SERVICE.]

Send information on items identified by key numbers beside or below items of interest to you. List your choice in numerical order. Limit 10 per card.

(1) ..... (2) ..... (3) ..... (4) ..... (5) .....

(6) ..... (7) ..... (8) ..... (9) ..... (10) .....

IF NO KEY NUMBER, USE COMPANY NAME .....

BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed in the United States

FIRST CLASS
PERMIT NO. 1417
CHICAGO, ILL.

– POSTAGE WILL BE PAID BY –

ROCK PRODUCTS
79 WEST MONROE ST.
CHICAGO 3, ILL.

READER-SERVICE CARD

TO HELP YOU OVERCOME TODAY'S PROBLEMS . . .
. . . AND TO PLAN EFFICIENTLY FOR TOMORROW

FREE INFORMATION

You can obtain catalogs and literature listed on these and other pages of the magazine by entering the number appearing either below or beside the item of interest on the READER-SERVICE CARD in this page.

MOTOR DRIVES—Worthington Corp. has published Bulletin 1610-B1 P, describing its motor drives with positive pulley adjustment ranging from ½ to 25 hp.

Enter 716 on Reader Card

POWER TRANSMISSION MACHINERY—Dodge Manufacturing Corp. has issued Engineering Catalog D56, a 328-page illustrated booklet listing Dodge-produced power transmission machinery.

Enter 717 on Reader Card

PRECISION BATCHING — Scientific Concrete Service Corp. has published a brochure, "Uniform Concrete," describing its precision concrete control equipment, method of operation, and results obtainable.

Enter 718 on Reader Card

REFRACTORIES — Harbison-Walker Refractories Co. has published "Better Refractories Through Quality Control," describing the methods by which Harbison-Walker insures dependable uniformity of refractory products.

Enter 719 on Reader Card

SAND CLASSIFIER—Meckum Engineering, Inc. has prepared Bulletin 900 describing the Meckum-Floatex automatic sand-making and classifying plant now manufactured in the United States by agreements with Floatex Separations, Ltd. of England.

Enter 720 on Reader Card

SHEAVES — Allis-Chalmers Manufacturing Co. announces Bulletin 20B8524 giving construction features of the new one- and two groove "Magi-Key" sheaves for speed adjustment of "Texrope" V-belt drives in A and B sections.

Enter 721 on Reader Card

SHOVEL—International Harvester Co., Construction Equipment Division, has published Booklet CR-521-F, describing the new 2¼-cu. yd. International Drott TD-14 4-in-1 Skid-Shovel.

Enter 722 on Reader Card

SHOVEL CRANE—Thew Shovel Co. has prepared a catalog describing the crawler-mounted Lorain "50" 1-cu. yd. shovel crane. Operating advantages are enumerated and action photos show it in use as crane, shovel, clamshell, dragline and hoe.

Enter 723 on Reader Card

SLURRY MIXER — Dorr-Oliver Inc. announces Bulletin No. 1141-R, "The Dorr Slurry Mixer," which describes the design variations, sizes, physical characteristics, capacities, special features and operation of Dorr slurry mixers.

Enter 724 on Reader Card

TEST SYSTEMS — Magnaflux Corp. has prepared Form 151 describing Magnaflux-Magnaglo magnetic particle inspection—methods for non-destructive testing of magnetic materials.

Enter 725 on Reader Card

TESTERS—Custom Scientific Instruments, Inc. has issued Catalog No. CS-56, containing illustrations and descriptions of 37 testing instruments, including the long-life sieve developed by Federal Portland Cement Co. for routine hourly sieve analysis of cement.

Enter 726 on Reader Card

TRACTORS—Caterpillar Tractor Co. has brought out four booklets on tractors or graders. Form 31903 describes No. 112 75-hp. motor grader; Form DE627, "Big Tracks," discusses the company's largest crawler tractors—the D6, D7, D8 and D9; Form 32243 describes the D9 tractor in action; and Form 32024, "New Traxcavators for New Profits," explains features of Models 933, 955, and 977 traxcavators.

Enter 727 on Reader Card

TRACKS—Kensington Steel Co. a subsidiary of Poor & Co., has issued Bulletin 1050 B, "Kensington Tracks Last Longer," listing advantages in construction and improvements in design which contribute to service life of the tracks.

Enter 728 on Reader Card

VIBRATING SCREENS — Allis-Chalmers Manufacturing Co. has issued 24-page Bulletin 07B6151D describing construction features of Model SH and Model XH vibrating screens.

Enter 729 on Reader Card

WELDERS—The Lincoln Electric Co. has prepared Booklet SB-1355 10M, "New Lincolnweld," describing submerged arc welder Models LAF-3, LAF-4, and LAF-5, designed for d.c. and a.c. automatic welding and d.c. welding in the field, respectively.

Enter 730 on Reader Card

WIRE ROPE—Macwhyte Co. announces a new 24-page catalog, No. 5601, of its "Safe-Lock" swaged wire rope assemblies, giving dimensions, drawings, capacities, and sizes of both terminals and wire rope. Copies of the company's trade bulletin, "Ropeology," No. 5685, describing "PREmium Whyte Strand" wire rope, are also available.

Enter 731 on Reader Card

USE THIS READER-SERVICE CARD for additional information on:

ADVERTISED PRODUCTS • LITERATURE • NEW PRODUCTS • CATALOGS

BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed in the United States

FIRST CLASS
PERMIT NO. 1417
CHICAGO, ILL.

– POSTAGE WILL BE PAID BY –

ROCK PRODUCTS

79 WEST MONROE ST.

CHICAGO 3, ILL.

READER-SERVICE CARD

RP-1-57

ROCK PRODUCTS
79 W. Monroe St.

JANUARY, 1957
Chicago 3, Illinois

Cannot be serviced after March 1, 1957 postmark.

Please print or type

Name _____ Position _____

Company (In Full) _____

Company Address _____ City _____ Zone _____ State _____

MAIN PRODUCT OF PLANT _____ **CAPACITY** _____

[THIS INFORMATION WILL HELP US GIVE YOU ALL MORE SERVICE.]

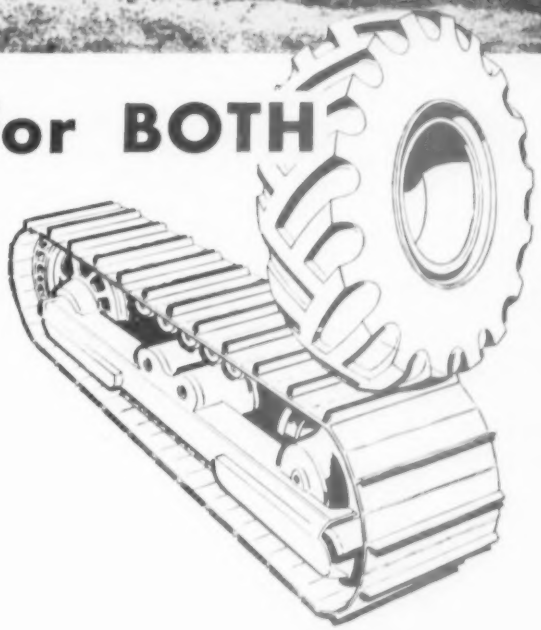
Send information on items identified by key numbers beside or below items of interest to you. List your choice in numerical order. Limit 10 per card.

(1) ..... (2) ..... (3) ..... (4) ..... (5) .....

(6) ..... (7) ..... (8) ..... (9) ..... (10) .....

IF NO KEY NUMBER, USE COMPANY NAME .....

There's a place for BOTH



Work problems today demand modern equipment that can do specific jobs faster and at lower cost. Tournatractor is a modern tractor designed to take advantage of . . . *power, traction, speed* and *mobility*. It does not offer as much drawbar horsepower at speeds below 2 miles per hour as do track-type tractors of equal engine horsepower. But, if your job conditions are such that you can capitalize on *speed* and *mobility* — with a machine that delivers comparable traction at present day speeds, we suggest you consider the *new* LeTourneau-Westinghouse Tournatractor. The cost is 10% below that of track-type tractors with torque converters and comparable engine horsepower.

Before you buy — EVALUATE

1 — Your demands for power
2 — Requirements for traction
3 — Advantages of speed
4 — Need for mobility

After giving careful consideration to all of these factors when selecting a tractor, questions in regard to your specific application may still be in your mind. The best way to dispel all doubt about the qualifications of any tractor is to see it perform on your job.

We will be happy to arrange the demonstration of a Tournatractor on your job, to prove that this rubber-tired tractor has the *speed* and *mobility* that can pay off for you. Call or write today. No obligation!

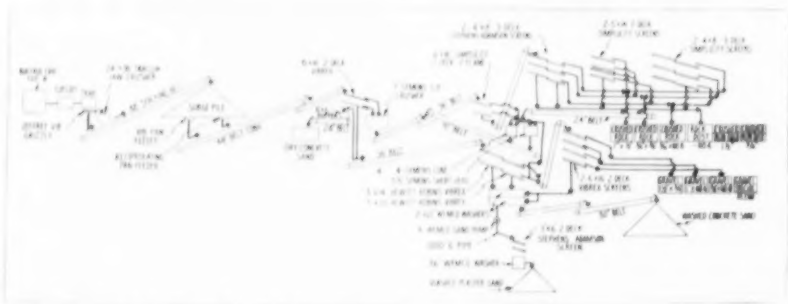
Tournatractor—Trademark Reg. U.S. Pat. Off. CT-1145-G-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

El Monte, Calif. plant of Graham Bros. With main plant, to the left; crushed rock section reached by belt, to the right



Flow diagram of Graham Bros. El Monte plant

4- x 8-ft. Stephens-Adamson screens
5- x 14-ft. Hewitt-Robins Vibrex screens as well as other sizes
2 60-in. Wemco sand preparation machines
1 36-in. Wemco sand preparation machine
6-in. Wemco sand pump
1 American 10125 Revolver crane
1 Colby Model 200 Revolver crane
1 D-12 Caterpillar motor grader
1 D-8 Tractor
3 Euclid end-dumps
2 Sterling dump trucks

Azusa Rock and Sand Co. Azusa, Calif.

The Azusa Rock & Sand Co. plant was described in ROCK PRODUCTS, February, 1947, p. 94. The plant was new at the time and differed from many plants built during the late 40's in that it used large capacity bucket elevators for material handling. A great deal of planning went into the design of these elevators with the idea of eliminating as far as possible some of the defects of bucket elevating. The four elevators have handled 12,000,000 tons since the plant started, and have more than justified their adoption. Belts on the elevators are renewed every 42 months.

El Monte, Calif. plant of Graham Bros. Loading 66-ton payload into tandem-semi-trailer haulage unit

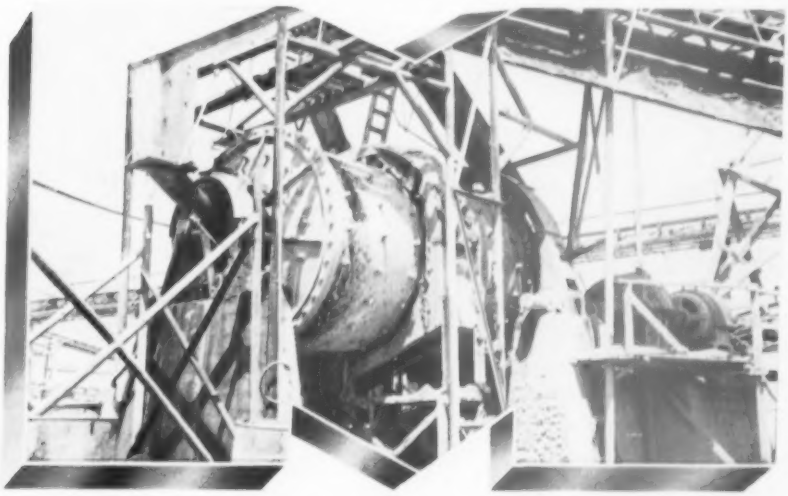
Since the plant first started operating no major changes in the flow of material has been made and it continues to be a very efficient and high producing unit. In the pit, a new 3½-cu. yd. 1201 Lima shovel with a

(Continued on page 150)

see what Marcy can do for YOU!

SAND FROM STONE, FOR SAINT LAWRENCE SEAWAY

Providing **specification** sands for concrete, on location, from the same quarried stone used for coarse aggregate... that is the assignment for the Marcy Center Peripheral Discharge Rod Mills.



8' x 12' Marcy CPD Rod Mill owned by C. A. Pitts, General Contractors, Ltd., Cornwall, Ontario

PROVED ADVANTAGES OF MARCY CPD ROD MILL

Better Sand Product. Grinding in a Marcy CPD Mill will produce for you a uniformly cubical shaped product with same characteristics of shape and strength throughout the range of sizes produced. This results in:

- **stronger concrete**
- **better finish on concrete**
- **better slump characteristics**
- **use of less cement**

Operating Advantages. Compared with crushing, experience has proved you will get these additional advantages by grinding with Marcy CPD mills

Low Cost...low maintenance, less steel consumption and less power per ton result in an overall cost generally less than 25c per ton, exclusive of ammortization.

Flexibility ... by varying rate of feed, pulp dilution and discharge port area it is possible to change gradation of finished product to meet different specifications.

Cleaner Operation
Wet or Dry Grinding

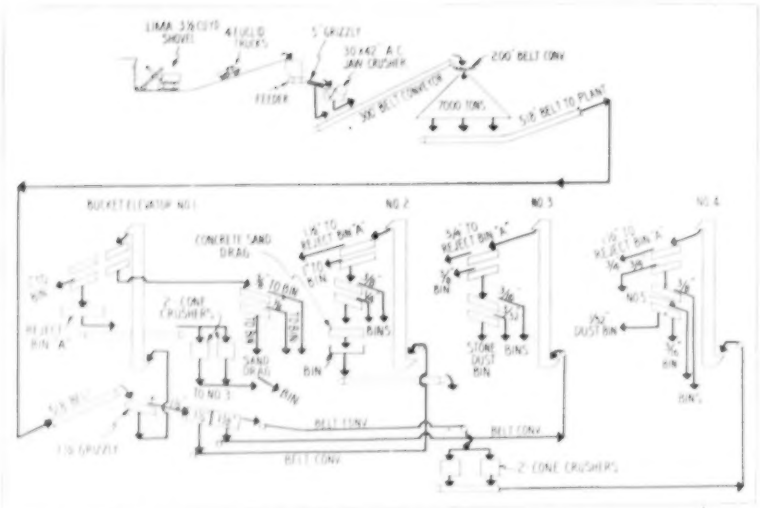
Capacities from 2 to 200 dry tons per hour.

NO EXTRA CHARGE FOR MARCY® EXPERIENCE

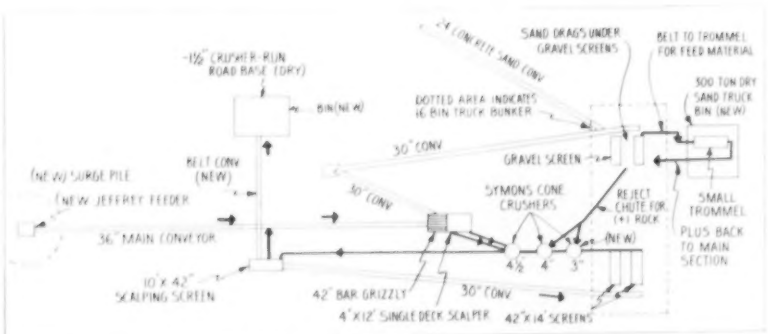
THE MINE AND SMELTER SUPPLY CO.

DENVER NEW YORK SALT LAKE CITY EL PASO

SALES AGENTS AND LICENSED MANUFACTURERS THROUGHOUT THE WORLD



Flow diagram of the Azusa Rock and Sand Co. plant in Azusa, Calif.



Flow diagram of Livingston Rock & Gravel Company's Kincaid plant

torque converter was installed. Four Euclid bottom-dump trucks have replaced older equipment. Belt conveyors deliver from the pit to a large surge pile and to the plant. The company operates several ready-mix plants in southern California. Some material is shipped by rail but company-owned trucks handle a high percentage of the output. The Azusa Rock & Sand Co. has 160 trucks of all kinds.

Kincaid Plant
Livingston Rock & Gravel Co.

Livingston Rock & Gravel Co., Inc., Kincaid plant is a short distance from Irwindale and was described in ROCK PRODUCTS, November, 1950, p. 56. Original capacity was in the 400 t.p.h. range but rearrangements and changes have been made that will bring it up to 650 t.p.h. Crushed and natural gravels are kept separate; the latter is washed. A dry natural sand is produced from a more recent addition. For this unit, a cut is taken of dry sand from the older plant which is then put through a short trommel with the dry sand going to a 300 ton truck bin with any plus material belt conveyed back to the main section. The original plant had a 4¼-ft. standard Symons and a 4-ft. short-head but a 3-ft. Symons has been added to the final reduction set-up.

Facilities also have been installed to produce crusher-run road base. A large fleet of "telescopic" trucks haul most of the plant output. Over 300 company-owned trucks are in service at its plants in Southern California.

As the pit is now about 100 ft. deep, it is planned to move the primary crusher to the floor of the pit. The fleet of Euclid bottom-dump trucks will then dump direct to a truck hopper over the crusher. A 42-in. by 16-ft. Pioneer apron feeder will deliver the pit-run to the Cedarapids jaw crusher with throughs going to a 36-in. belt conveyor system that delivers to a new 5000-ton capacity surge pile. A 90-ft. truss designed by the Conveyor Co. of Los Angeles is a part of the conveyor assembly. The surge pile will be 60 ft. above the reclaiming tunnel, and a Jeffrey vibrating feeder will deliver to the reclaim belt. In the pit a 4½-cu. yd. Marion electric shovel does the primary loading, replacing older equipment.

Equipment, Kincaid plant:

- 32- x 48-in. Cedarapids jaw crusher (primary)
- 3 Symons cone crushers
- Barber-Greene conveyors
- Vibrating Symons scalping grizzly
- Symons screens
- Euclid bottom-dump trucks
- Marion electric shovel
- Control room with push-button controls that can be locked if item is under repairs
- 8-in. Fairbanks-Morse deep-well pump supplies water

Observes 25th Anniversary

CANADIAN GYPSUM CO., LTD., Toronto, Ont., Can., subsidiary of U. S. Gypsum Co., is observing its twenty-fifth anniversary. Since its opening in 1931, many changes have taken place, the most recent being addition of gypsum products warehouse and loading shed and a perlite expanding plant.

There's a new and interesting treat in store for you when this traveling Atlas ROCKMASTER® *Exhibit comes rolling into your area.*

Atlas has virtually put a theater on wheels, to bring you a complete demonstration of efficient, modern blasting methods. In this unusual exhibit booth, you can relax in a comfortable seat while sound films in color bring you the latest and best information on modern confined blasting: the kind that provides maximum breakage with minimum noise and vibration. In special stereo viewers, you can examine the details of blasting action and loading techniques which you may be able to apply in your operations.

Charts and other visual exhibits are displayed to make your "visit in the Volkswagen" the most interesting, informative half-hour you've ever spent! You'll see the latest drilling, loading and shooting methods, graphically illustrated . . . a bus load of ideas which could mean increased profit for you through better blasting.

It's another first by Atlas, and is now starting to tour the country. Don't miss it. Check with your Atlas representative to find out when it will be in your area!

Bus Load of Blasting Ideas . . . *coming your way*

EXPLOSIVES DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE
offices in principal cities

Enter 1477 on Reader Card

Highway Program

(Continued from page 85)

ing of details, and specifications for manufacture must be issued. At the same time, the order must be cleared with the production control department for scheduling. Meanwhile, the manufacturers' purchasing department must check the production order to insure that all necessary parts are on hand or will be available to meet the production schedules. Frequently, during manufacture questions arise that need further action by the engineering department. Often, a complete set of shop drawings are required to take care of all the "special features" involved. This special engineering alone may at times consume several weeks time.

Because so many plants must be "custom built," the shop work becomes one of almost "hand building" a plant. What seemingly could be built in days from standard parts frequently turns out to be a job taking several months.

Under the normal circumstances prevailing the past several years, producers and contractors have been able to stand by while plants were being built for them. Accelerated demands for plants under the new road program will place a heavy burden on manufacturers of crushing, screening, washing and bituminous plants, as well as on those who make equipment for general purpose use. As a result, many producers and contractors may find themselves out on a limb, unless they are willing to place orders for new plants early.

As a matter of fact, producers will be doing themselves a great favor by anticipating their needs for aggregates processing equipment now, so that the builders can make up equipment for early delivery. Demands for immediate shipment are lightest during the winter months, and manufacturers need this time to gain momentum and to build up to meet the early season rush. Unless producers take advantage of this opportunity, they may find themselves behind the 8 ball in bidding against penalty clauses for failure to meet completion dates.

What about the engineers?

While advance ordering of equipment will help to solve one of the pitfalls we see—being able to get the machines to do the job—what can be done about the shortage of engineers?

Unless there are enough highway engineers to get the plans off the boards, manufacturers won't need engineers. Producers, distributors of machinery and manufacturers must become more active in encouraging more students to consider highway and construction engineering courses. The Construction Industry Manufacturers' Association has taken a step in the right direction. It has suggested to equipment distributors that they urge engineering college faculty members to attend the Road Show later this month. But more will have to be done.

Direct encouragement to likely engineering candidates could come through scholarships sponsored jointly or singly by the rock products producers, contractors and manufacturers of construction equipment. Some efforts along this line by contractors groups and manufacturers already have been made, but this type of program could well be broadened.

Public apathy to the whole road program, largely through lack of knowledge of the issues, is perhaps more of a threat to full speed ahead than any other factor mentioned above. Public apathy delays the program of securing rights of way, of agreement on plans for going around congested trade areas, and of forcing through the much needed road revenues in many states. Only as the public is aroused to concerted favorable action will the political bureaus and bosses give serious attention to the problems attendant to getting the road program off to a good start.

It is indicated, therefore, that manufacturers of construction machinery, producers of the materials of construction, contractors and equipment distributors find some common means of launching an intensive program designed to inform the public of what must be done.

Perhaps this is a bigger job for the American Road Builders Association than the forthcoming Road Show!

Phosphate Rock Output . . .

(Continued from page 120)

Smelting, a large Canadian mining organization. The entire output of Montana Phosphate Products is exported to Canada, mostly to Consolidated's plant at Trail, B.C. It is used largely for the production of ammonium phosphate.

Victor Chemical operates two underground mines (Maiden Rock and Canyon Creek) south of Butte, Mont. The ore goes to two electric furnaces at Silver Bow, just east of Butte. A new washing plant at Silver Bow cleans the ore before it is charged into the electric furnaces.

Western technology is advancing rapidly, and the processing and use picture may change significantly from year to year. At present, about 65 percent of the rock tonnage goes into electric furnaces; about 20 percent goes into making ammonium phosphates; about 12 percent goes into making triple superphosphate; and most of the remaining 3 percent goes into direct soil application.

Tennessee production remained nearly static, as it has for some years. Total tonnage is estimated at 1.7 million long tons; of this, more than 75 percent was used for electric furnace feed, 10 percent was used for direct application to the soil, and about 10 percent for production of ordinary and triple superphosphates. The remainder went largely to miscellaneous agricultural uses.

Three major companies mine and operate one or more washers; Armour, IM&CC, and Virginia-Carolina Chemical. Three other companies operate smaller washers in Hickman County: Highland Co., Owens Phosphate Co., and M. C. Boyle Phosphate Co. The last three produce ground rock for direct application to the soil. Monsanto Chemical and Victor Chemical operate washers in conjunction with their electric furnace operations.

The only changes in 1956 in the Tennessee phosphate area were IM&CC's rebuilding and operation of the former TVA Godwin plant for washing, and Shea Chemical Co.'s completion and operation of a second electric furnace at Columbia, Tenn. Shea Chemical also announced plans to start its own mining and washing.

Monsanto continued to operate its electric furnace plant near Columbia; and Victor continued to operate its electric furnace plant at Mount Pleasant. Tennessee phosphate rock is also used in TVA's furnace plant at Florence, Ala. Most of the Tennessee phosphate rock production, after washing, is kiln-nodulized (or sintered or pelletized) for use in the furnaces operated by Monsanto, Shea, TVA and Victor.

Extra Dividend Paid

SUPERIOR PORTLAND CEMENT, INC., Seattle, Wash., declared an extra dividend of 15¢ a share in addition to a regular quarterly dividend of 35¢ a share on common stock. Both were payable December 10, 1956 to stockholders of record November 26.

LOW-COST
Transportation System

Moving air, water or materials wherever you need them on construction jobs is a simple matter with a dependable vehicle like Naylor Spiralweld pipe.

This distinctive steel pipe is light in weight – easy to handle and install, even over the roughest terrain. But, don't let this light weight fool you because Naylor pipe is built with the exclusive lockseamed, spiralwelded structure that gives you the extra strength and safety that you'd normally expect only in heavier-wall pipe.

The same light weight that simplifies handling and installation also pays dividends in lower costs. And further economy in time and money is assured through use of the one-piece Naylor Wedgelock coupling – the fastest method of pipe connection available today.

Naylor pipe sizes range from 4 to 30 inches in diameter to take care of your needs in air and water lines, ventilating systems, and materials handling lines. *Write for Bulletins No. 507 and No. 513.*

NAYLOR

NAYLOR PIPE COMPANY
1237 East 92nd Street, Chicago 19, Illinois

Eastern U.S. and Foreign Sales Office:
350 Madison Ave., New York 17, New York

Enter 1478 on Reader Card

"loading . . . hauling . . . dumping . . . you can't beat 'em!"

That's what Mr. Arnold R. Lyon of Harry Berry, Inc. says about their Mack LRX dumpers. As general manager of their quarry at Hopkinsville, Kentucky, Mr. Lyon appreciates the dollar-and-sense value of Mack trucks.

"Ours is a short haul from the quarry to the crusher, averaging 75 trips a day. The resultant strain from the constant loading and dumping, as well as the 16% grade a good part of the way, really gives our trucks a tough workout. Moreover, we find that we are able to produce more work with our Macks because their balance, short turning radius, and maneuverability speed up spotting under the shovel and dumping at the hopper.

"Our Macks haul 16- to 17-ton loads day in and day out . . . averaging 2 gallons of fuel per hour. In 3½ months, outside of routine servicing, we have not had a single second of downtime. But aside from the economy and performance, our drivers like them better than other makes . . . easier to handle . . . better riding . . . greater sense of confidence. Certainly, it's been our experience that you can't buy a better truck than a Mack."

Mr. Lyon has learned about Macks from experience. If you have a hauling job, especially a tough one, why not let your Mack dealer or representative tell you about all the satisfied Mack users in your area. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

4573

D-457

Production at a profit . . . wherever you use it

DIAMOND 77 PORTABLE CRUSHING and SCREENING PLANT

Here are the cost-cutting, production-boosting advantages that put Diamond way out in front:

- ★ **Big, powerful crushing capacity with a 10″ x 36″ jaw crusher and a 36″ x 22″ star gear roll crusher.**
- ★ **Speedy separation of material on a 4′ x 12′, 2½ deck vibrating screen.**
- ★ **30″ wide belt conveyors.**
- ★ **The Diamond "line-flo" rotor-lift principle that guarantees fast, continuous movement of aggregate.**

You get all these in a Diamond plus complete portability . . . a hydraulic mechanism to lower the screen deck to travel position . . . and rugged Diamond construction throughout for practically any type of crushing operation. No wonder reports from the field read like these:

"300 to 400 tons per hour of road gravel in 25% to 35% crush" . . . "less down time, more production" . . . "oversize roll crusher and screens do the trick" . . . "smoothest operating plant we have seen".

And remember . . . Diamond gives you a choice of drives. Mechanical drive with one power unit is standard. Optional drive: (1) one power unit to drive crushers with electric motors to drive screens, rotor-lift and conveyor, and (2) same as No. 1 except for motorized head pulleys on all conveyors.

There will be a Diamond Type 77 "All American" plant at the Road Show. Be sure to see it.

DIAMOND IRON WORKS
division
GOODMAN MANUFACTURING COMPANY
Halsted Street and 48th Place • Chicago 9, Illinois

Everything For The Aggregate Producer

Jaw Crushers • Roll Crushers • Conveyors • Screens and Washers • Feeders and Bins • Portable and Stationary Crushing Plants For Rock and Gravel

Enter 1480 on Reader Card

Enter 1506 on Reader Card

Review of Recent U.S. Patents on Non-Metallic Minerals

By OLIVER S. NORTH

2,766,131—**Amosite** asbestos fiber is incorporated into an insulating material formed by mixing **lime, chrysotile, diatomite,** and **silica sand.** The "harsh" amosite fiber serves to reinforce the product. (to W. R. Seipt. Assigned to Keasbey & Mattison Co.)

2,766,132—Crushed carbonate aggregates, such as **limestone** and **dolomite,** can be made more readily asphalt-wettable by adding thereto small percentages of certain organic reagents, particularly salts of the imidazolines. (to C. M. Blair, Jr., and K. J. Lissant. Assigned to Petrolite Corp.)

2,766,140—A method for coating lightweight, **asbestos**-reinforced hydrous calcium silicate insulation panels with an alkali metal borophosphate and a metal silico-fluoride to increase the surface strength and hardness of the units. (to J. W. Plauka and R. E. Parry. Assigned to Johns-Manville Corp.)

2,766,183—Vanadium and/or sodium impurities in petroleum and petroleum products can be effectively removed by contact treatment with **fuller's earth.** (to F. W. B. Porter and R. P. Northcott. Assigned to the British Petroleum Company Ltd.)

2,766,209—Solid or semi-solid lubricating compositions are produced by adding a colloidal clay of the **bentonite** type to the lubricating fluid. (to W. A. Marshall and C. F. Steininger. Assigned to The Pure Oil Co.)

2,766,234—A triazine fungicidal composition can be effectively dispersed on a finely divided, inert carrier material, such as **attapulgite, diatomite,** and **pyrophyllite.** (to C. J. Grundmann and G. Ottman. Assigned to Olin Mathieson Chemical Corp.)

2,766,254—A mixture of high grade **fuller's earth** and **diatomite** is used to pack a chromatographic column utilized in a process for isolating biocytin. (to L. D. Wright, T. R. Wood, and K. Folkers. Assigned to Merck & Co., Inc.)

2,766,274—A fungicidal composition is made by intergrinding **talc, fuller's earth**, and a crystalline organic sulfide. (to A. L. Flenner. Assigned to E. I. du Pont de Nemours & Co.)

2,766,485—Ground **talc** or **pumice** can be used as the absorbent material in microporous screens or diaphragms used in batteries, filter presses, absorbent baffles, etc. (to R. Jevelot and J. Ahrweiler. Assigned to Compagnie de Caoutchouc Manufacture "Dynamic".)

2,766,498—Improvements in the process and equipment used in casting aluminum and aluminum alloys in **gypsum** plaster molds.(to J. C. Heintz. Assigned to The James C. Heintz Co.)

2,766,883—In the double flotation process for recovering values from Florida pebble **phosphate** ores, a finely divided solid, such as **fuller's earth, activated clay, diatomite, kaolin, bentonite, pyrophyllite, talc, gypsum, slate** dust, etc., is used in place of the usual mineral acid for deoiling the rougher concentrate produced in the first step of the process. Accumulated phosphate matrix slimes, which usually present a disposal problem, also can be used for this purpose. (to O. C. Chapman and A. W. Dean. Assigned to Virginia-Carolina Chemical Corp.)

2,766,884-2,766,885—In a process for purifying natural **kainite,** the sodium chloride impurity is brought into the froth of the flotation cell by adding magnesium chloride and a branched chain amine or an alkylamine acetate. (to G. Marullo and G. Perri. Assigned to Montecatini societa generale per l'Industria Mineraria e Chimica.)

2,767,045—A process for recovering uranium values and fluorine-free dicalcium phosphate from **phosphate rock.** (to R. F. McCullough. Assigned to United States Atomic Energy Commission.)

2,767,046—A process for recovering high-purity alumina from **phosphate** ores, for example, the leached layer and the matrix layer in the Florida pebble phosphate field. Uranium and phosphate values also can be recovered by this method. (to R. J. Piros, Jr. Assigned to U. S. Atomic Energy Commission.)

2,767,065—An improved apparatus and method for producing high quality **gypsum** plaster by kettle calcining the rock in a solution of calcium chloride or other suitable salt. Calcination is carried out on a batch basis. This patent mainly covers refinements on an earlier patent, U. S. 2,616,789, issued to one of the patentors, and is principally directed to mechanical improvements in the apparatus used. (to G. A. Hoggatt and C. G. Shuttleworth. Assigned to Bestwall Gypsum Co.)

2,767,175 - 2,767,176 - 2,767,177 - 2,767,189—This series of patents describes processes for producing compounds, or "complexes," useful for mixing with hydrocarbons to produce improved heavy greases. The complexes are made by reacting **bentonite** with ammonium compounds of the quarternary, monoquarternary, aminoquarternary, or polyquarternary types. (to J. G. Erickson. Assigned to General Mills, Inc.)

2,767,768—The core of an insulating gasket comprises approximately 50 percent each of a solid polymer of tetrafluorethylene and an inorganic filler, for example, **asbestos, talc, mica, soapstone, oystershell,** and **diatomite.** (to U. Jelinek. Assigned to The M. W. Kellogg Co.)

2,767,926—An apparatus and method for uniformly fine-grinding granulated **blast-furnace slag** in a liquid environment, to obtain an **hydraulic cement** which will develop optimum binding properties when subsequently mixed with a catalyser and used. This patent covers apparatus for producing the cementitious product more fully described in U. S. 2,632,711. (to L. Trief and M. Trief.)

2,767,972—In an improved, continuous method for uniformly calcining **gypsum,** finely ground particles of the rock are heated in temperature-controlled saturated vapors while flowing across a surface as shallow films or streams. (to W. L. Badger.)

2,768,094—Concrete reinforcing armature irons are protected from rust by applying a layer of **portland cement** slurry, curing in moist saturated atmospheres for a period of time, and then impregnating the hardened cement with a thin, non-drying oil. (to C. H. Gemmel and N. E. F. Willen. Assigned to International Ytong Co. AB.)

2,768,133—**Novaculite,** or "Arkansas oilstone," of very fine particle size is used for blasting a decorative surface onto plastic articles. (to A. Lundbye.)

2,768,264—An electric arc-suppressing shield comprises an organic binder, aluminum or magnesium oxide or hydrate, **asbestos** fiber, and an inorganic filler, such as **mica, barite, limestone, whiting,** or **silica.** (to P. W. Jones and R. E. Wilkinson. Assigned to Rostone Corp.)

Copies of United States patents are available at a cost of 25 cents each from The Commissioner of Patents, Washington 25, D.C. For convenience, coupons each good for one copy of any patent may be purchased from that official, at the rate of $5.00 per 20-coupon pad or $25.00 per 100-coupon pad.

*Licks tough rock with this 2½-yd. LORAIN

This quarry face melts away at the rate of 2000 yds. a day as Franklin Stone's 2½-yd. Lorain shovel loads out the tough rock for hauling to the crusher.

Lorains have always proved themselves in this kind of hard digging. They have built a reputation for their ability to work for years in quarries where digging demands are extreme.

And now, Lorains are better than ever! Latest advancements in 2½-yd. Lorains include many improvements that help operators get even bigger yardage on a steady schedule. Here are a few incorporated in Lorain's newest 2½-yd. shovel—the Lorain-85A. There are 2-lever, "Joy Stick-Air Ease" controls with new air-actuated clutches for easier, faster, simpler "Metered-Air" operation of all turntable operations. All crawler operations are controlled by "Air-Ease" power. There is a "new look" in the streamlined cab that introduces new operator comfort, convenience. The exclusive Lorain "Shear-Ball" mounting eliminates center pin and nut and rollers of all kinds with their attendant wear, adjustment and maintenance. The "Shear-Ball" mounting provides smooth, rock-steady, "Ball-Bearing" swing. There is nothing like it on any other shovel-crane.

You can see the new Lorain-85A at the Chicago Road Show along with many other new Lorain features—don't miss it! Also, check with your Thew-Lorain Distributor for latest news about all other Lorain models.

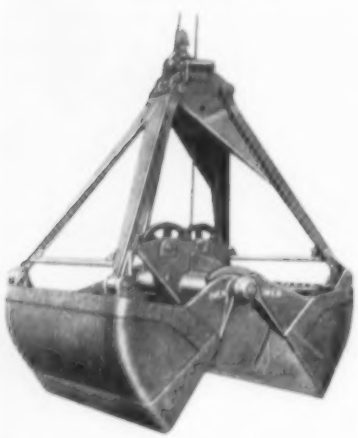
The Thew Shovel Co., Lorain, Ohio

THEW LORAIN®

Enter 1479 on Reader Card

NEW MACHINERY

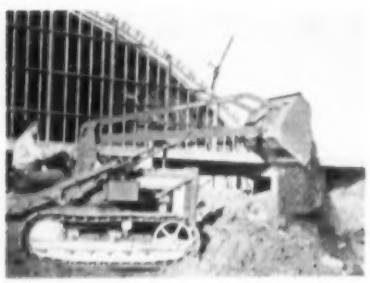
(Continued from page 64)



Materials Handling Bucket

THE OWEN BUCKET CO., 6029 Breakwater Ave., Cleveland 2, Ohio, is introducing the "SCL" wide materials handling bucket, available in a range of sizes from ¾ to 3-cu. yd. capacities. The new model features a closing line lead straight through the center plane of the bucket to the first lower sheave, eliminating the bending of the closing line around the guide sheaves. The new model, with others in the Owen line, will be displayed at the A.R.B.A. road show.

Enter 317 on Reader Card



Crawler-Loader

JOHN DEERE INDUSTRIAL DIVISION, Moline, Ill., announces a new ⅝-cu. yd. struck capacity crawler loader with 30-hp. engine. Direct mounting of the formed-steel loader frame on the square crossbars of the crawler prime mover places the load squarely on both tracks. The bucket has a reversible, hardened steel cutting edge and replaceable malleable teeth. A rear-mounted, hydraulically controlled, 3- or 5-tooth scarifier is available as optional equipment, and the crawler-loader is so constructed that a backhoe may be mounted in conjunction.

Enter 318 on Reader Card

Front-End Loader

TRACTOMOTIVE CORP., Deerfield, Ill., has developed the TL-20 Tracto-Loader, a 2-cu. yd. front-end wheel loader powered by an Allis-Chalmers diesel engine developing 95½-hp. at 2000 r.p.m. Operating features include power shift transmission with torque converter drive, planetary axles, power steering, four-wheel power brakes, and three speeds forward and reverse. The bucket is designed to have 40 percent of tip-back at ground level. Dumping clearance is 9 ft. The new model will be shown for the first time at the A.R.B.A. road show.

Enter 319 on Reader Card

Truck-Mounted Crane

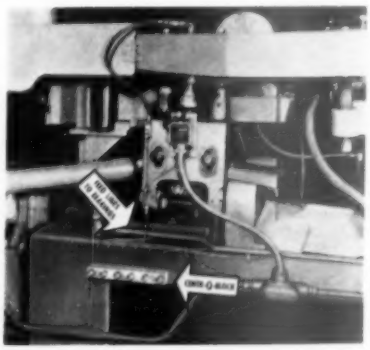
COLES CRANES, INC., Joliet, Ill., announces Model L-1510, truck-mounted crane for the materials handling field. The crane will lift 15 tons at 10-ft. radius with a 30-ft. boom. Boom lengths up to 75-ft. are available. Basic design of the superstructure follows Coles' gas or diesel-electric principles, but a new feature is the two-line hoisting now available which permits each line to be operated independently from a separate drum. The drums may be operated simultaneously and are equipped for power or gravity operation.

Enter 320 on Reader Card

Sand Classifier

MECKUM ENGINEERING, INC., 53 W. Jackson Blvd., Chicago 4, Ill., by agreements with Floatex Separations, Ltd., of England, is now manufacturing and offering in the United States the Meckum-Floatex Sand Classifying System. Fully automatic, hydraulic classification is provided by the system, which requires only one small rubber-lined pump to carry suspended sand through the complete process. Meckum-Floatex cones for final washing and classification, each rated at 40 t.p.h., are installed in numbers to produce the desired tonnages and gradations. The Meckum Sand Jig may be installed in conjunction with the system for removal of deleterious materials.

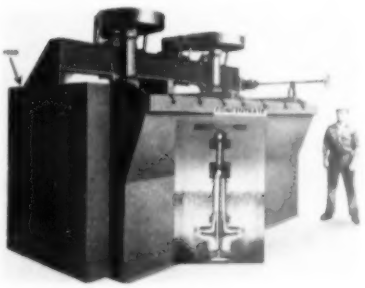
Enter 321 on Reader Card



Lubrication System

LINCOLN ENGINEERING CO., 5702-46 Natural Bridge Ave., St. Louis 20, Mo., announces a low-cost and simplified centralized lubrication system consisting of one or more manifold blocks, bolted to a machine and threaded for insertion of standard hydraulic grease fittings. Rigid or flexible feed lines connect bearings to inlet ports of the blocks, and fittings can be contacted by any standard manually- or power-operated application device.

Enter 322 on Reader Card



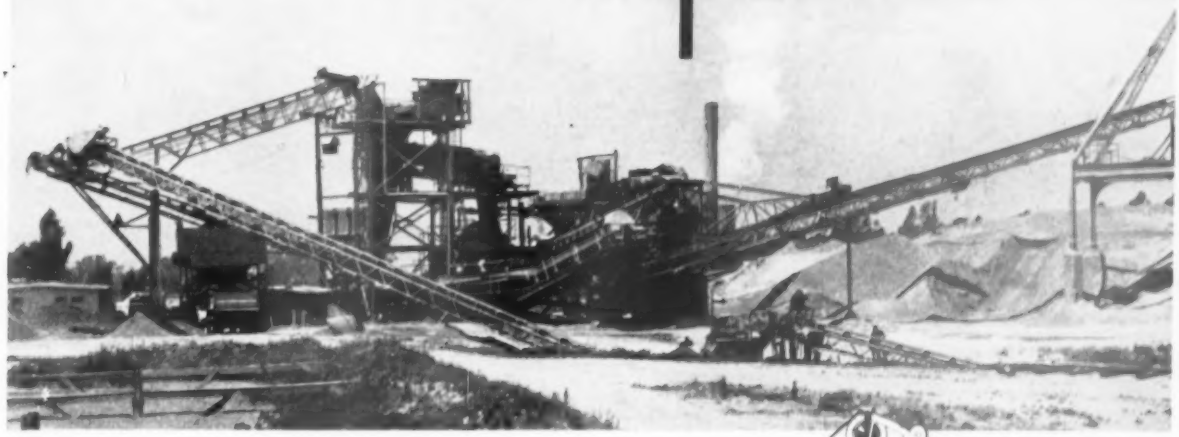
Flotation Machine

DENVER EQUIPMENT CO., 1400 17th St., Denver 17, Colo., is making available for commercial use the new Denver Type "M" flotation machine, designed for effective metallurgy in high tonnage roughing and scavenging operations. The machine employs three principles of aeration to secure improved flotation conditions: (1) mechanically entrained air which is (2) dissolved under pressure to promote nascent air; and (3) high velocity agitation. Extending the area of mechanical efficiency permits a larger tank of free-flow design. Added efficiency is said to permit lower horsepower per cubic cell volume.

Enter 323 on Reader Card

(Continued on page 160)

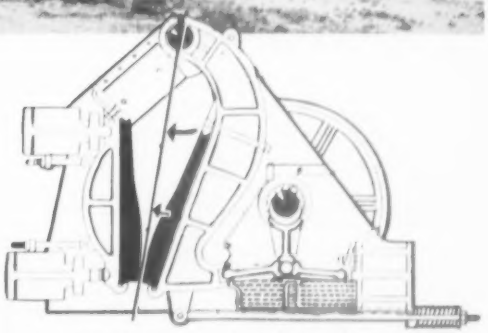
25% greater capacity with Kue-Ken® Crushers



The increased capacity from Kue-Ken jaw crushers permitted this southern California plant to use a smaller size than would have been required with other crushers. Kue-Ken has the greatest capacity for its size, yet consumes less power. The mechanism operates in a sealed, dust-tight crankcase lubricated by filtered oil. Wear is negligible so that shutdowns common to conventional crushers are practically eliminated. The flywheel is automatically released on overload avoiding any breakage. It can be quickly reset. This plant also includes Kue-Ken gyratory crushers for the secondary crushing.

Write for catalog

STRAUB MFG. COMPANY, INC.,
8380 Baldwin, Oakland, Calif.



Jaw plates last at least 5 times longer . . . only Kue-Ken crushes without rubbing

See how the hinge pin is located on the center line of the crushing zone. The jaw moves in an almost straight line. Rock is instantly gripped and crushed without rubbing.

KUE-KEN® CRUSHERS

"CRUSHING WITHOUT RUBBING"

Jaw Crushers Gyratory Crushers Overhead Eccentric Crushers Revolving Screens Classifiers Feeders Rib Cone Ball Mills Concentrating Tables Vibrating Screens

DEALERS:

SEATTLE, WASH.	Washington Machinery Co.
SALT LAKE CITY, UTAH	Lund Machinery Co.
SAN ANTONIO, TEX.	Closner Equipment Co.
PORTLAND, ORE.	Contractors Equipment Co.
LOS ANGELES, CALIF.	Garlinghouse, Fremon Co.
PHOENIX, ARIZ.	Stapley's
DENVER, COLO.	Union Supply Co.
CASPER, WYO.	Moss Equipment & Supply Co.
VANCOUVER, B. C.	Universal Equipment Co.

Pennsylvania Crusher Division, Exclusive Licensed Eastern Manufacturer and Distributor, 623 S. Matlock St., West Chester, Penn.
Armstrong Whitworth (Metal Industries) Ltd., Authorized Licensed Manufacturer and Distributor, Close Works, Gateshead upon Tyne 8, England

Enter 1468 on Reader Card

Dispersant

CROWN ZELLERBACH CORP., 343 Sansome St., San Francisco, Calif., is introducing Orzan P, a new member of a group of surface-active, lignin sulfonate chemicals for industry. The new chemical has the property of precipitating readily from solutions and clinging to fibers or other materials present. A spray-dried powder, Orzan P may be precipitated from even dilute solutions by the addition of alum. Recommended uses are as a binder for fibers, retention of fines, an emulsifier, an emulsion stabilizer, a flocculant, and a dispersant. Some of the applications developed for the Orzans have been as dispersants for lime slurries and gypsum board; grinding aids in grinding operations; and as ore flotation reagents.

Enter 331 on Reader Card

Stripping Shovel

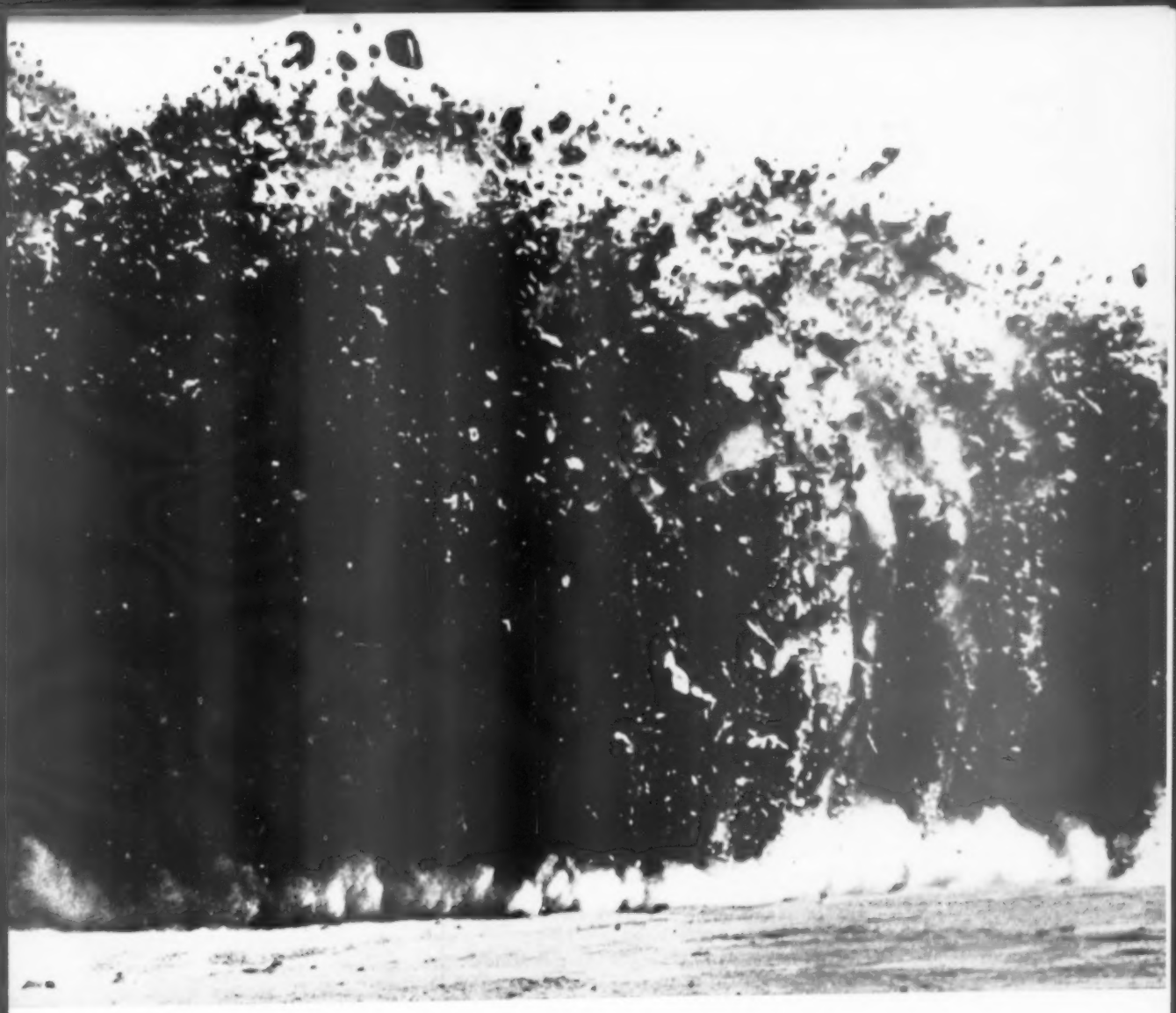
KOEHRING Co., Milwaukee 16, Wis. has introduced Model 1205 Hi-Lift Stripping shovel. The excavator, with 3-cu. yd. dipper, can be equipped with a 40-ft. boom and 29-ft. stick, or for added reach and cutting height, a 50-ft. boom with 36-ft. stick and 2½-cu. yd. dipper.

Design incorporates a single dipper stick with cable crowd and reinforced twin box section boom structure. Large sheaves are used throughout. Other features include mechanically operated swing clutches with low lever pull and power booster clutches on main drums with a cam arrangement that provides for easy clutch disengagement. Spring loaded traction brakes are released by air to reduce operator fatigue. The 1205 Hi-Lift can be converted for lift crane, dragline, or clamshell operation; the standard 60-ft. crane boom can be extended to a maximum allowable 180-ft., plus 30-ft. jib boom. It will handle dragline or clamshell buckets of 3 to 4-cu. yd. capacity.

Enter 332 on Reader Card

(Continued on page 162)

Enter 1505 on Reader Card



EXPLOSIVES RESEARCH IN ACTION

This photograph of a blast of 27,000 pounds of Hercules® explosives in a traprock quarry is conclusive proof of how proper explosives technique pays off. The initial breakage was excellent, providing a sloping bank of broken rock for easy shovel digging and uninterrupted crushing and screening operations in the plant.

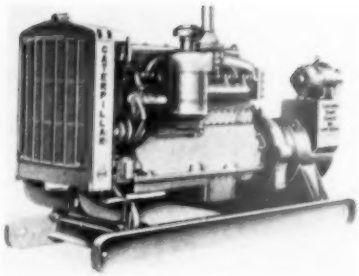
Achieving satisfactory results from primary blasts requires the selection and use of the right explosives materials and methods. For more than 40 years, Hercules has pioneered in the development of improved explosives techniques for quarrying, mining, seismic prospecting, and construction. A Hercules representative will welcome the opportunity to assist in solving your blasting problems.

HERCULES POWDER COMPANY

Explosives Department, 946 King St., Wilmington 99, Del.

Birmingham, Ala.; Chicago, Ill.; Duluth, Minn.; Hazleton, Pa.; Joplin, Mo.; Los Angeles, Calif.; New York, N. Y.; Pittsburgh, Pa.; Salt Lake City, Utah; San Francisco, Calif.

INFORMATION FILE
HOW TO OPERATE PROFITABLY
See ROCK PRODUCTS Table of Contents Page.
There is probably a story of interest and profit to you!

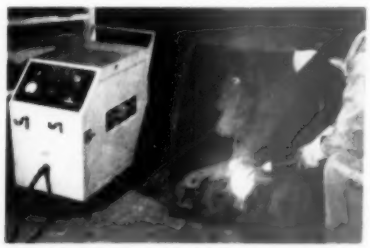


Diesel Electric Set

CATERPILLAR TRACTOR CO., Peoria, Ill., has added a new 100 kw. Cat D342 Electric Set to its line of power generating equipment. The unit uses one of Caterpillar's self-regulated generators designed and built specifically to match the Cat D342 diesel engine. It features extremely close voltage regulation and in most cases is said to be capable of filling the needs of applications now served by externally regulated units. Voltage drop and terminal voltage can be adjusted on the new generator to meet the needs of special installations. After adjustment, the controls are locked and no further adjustments are required.

Installation of the generator is said to be simple, requiring no elaborate switchboards or external controls. Sufficient electrical capacity has been built into the unit to enable it to handle the surge of heavy loads without affecting existing loads.

Enter 330 on Reader Card



Tube Rod Electrodes

AMERICAN MANGANESE STEEL DIVISION, American Brake Shoe Co., Chicago Heights, Ill., announces a new line of tube rod electrodes designed for use with the Amsco MF semi-automatic welder. They may be adapted for use with most other semi-automatic machines. Presently available are S/A Manganese; S/A 53; and S/A 33; all are $\frac{3}{32}$ dia. drawn tubular wire. The tube rod is a perfectly round steel-wire shell with the various alloys firmly enclosed within.

S/A Manganese has hardness deposit of 200 Brinell and work hardens up to 450-500 Brinell. Deposit rates run 5-6 lb. per hour at a 200-

(Continued on page 164)

Now . . . most power of the low-priced 3

New DODGE *PowerGiants*

1957 line-up gives you up to 232 hp.

Dodge tops the low-priced field in V-8 power by a big margin—actually delivers as much as *31% more!* This *extra* power in reserve saves engine strain . . . wear . . . excessive repairs. What's more, Dodge V-8's use *regular* gas, help keep your cost per ton-mile *down!*

Extra payload capacity. You can haul more—up to 73% more in the 300 model pick-up, for example.

Extra handling ease. Exclusive push-button automatic transmission*! Sharpest turning and easiest steering in the industry!

See the new *Power Giant* line-up now at your Dodge dealer's. You'll see features that prove it pays to get your Dodge dealer's deal before you decide on *any* truck.

**Available on all low-tonnage and Forward-Control models.*

DODGE meets your hauling needs!

Conv. Models	Max. G.V.W.	Max. G.C.W.	Max. V-8 HP.
100	5,100 lbs.	—	204
200	7,500 lbs.	—	204
300	8,800 lbs.	—	204
400	15,000 lbs.	26,000 lbs.	197
500	18,000 lbs.	32,000 lbs.	197
600	21,000 lbs.	35,000 lbs.	197
700	23,000 lbs.	45,000 lbs.	216
800	25,000 lbs.	55,000 lbs.	222
900	30,000 lbs.	65,000 lbs.	232
Forward-Control Models			
P300	9,000 lbs.	—	204
P500	15,000 lbs.	—	204
C.O.E. Models			
C500	18,000 lbs.	32,000 lbs.	197
C600	21,000 lbs.	35,000 lbs.	197
C700	22,500 lbs.	45,000 lbs.	216
Tandem Models			
T700	32,000 lbs.	45,000 lbs.	216
T800	36,000 lbs.	55,000 lbs.	222
T900	46,000 lbs.	65,000 lbs.	232

DODGE TRUCKS

WITH THE *FORWARD* LOOK

Pick-ups

Stakes

Tractors

Enter 1512 on Reader Card

amp. setting on manganese dipper teeth and parts, crusher jaws, etc. S/A 53, a general purpose hardfacing alloy, is suited for application where heavy impact and abrasion are met. Deposit rate is 15 lb. per hour at a 350-amp. setting; deposit hardness is 425-475 Brinell. S/A 33, providing a deposit with extremely high abrasion resistance, is recommended for crusher rolls, hammermill hammers, tool joints, augur flights and dipper buckets. Deposits on weldable carbon or manganese steel run to 20 lb. per hour, and hardness averages 500 Brinell.

Enter 324 on Reader Card

Motor Graders

HUBER-WARCO CO., Marion, Ohio, has introduced two additions to its line of motor graders, Model 6-D2, powered by a 125 hp. JN-6-BI Cummins diesel unit, and 7-D2, powered by a 150-hp. JBIS-600 Cummins diesel. Both feature Huber-Warco's combination of a torque converter and full power shift transmission, plus a power sliding moldboard, operated hydraulically from the cab.

Every working position can be controlled hydraulically from the cab. The operator can attain a high bank-sloping angle up to 90 deg. on either side, and the blade can be rotated 180 deg. on either side without removing the scarifier teeth. Hydraulic booster steering reverts automatically to manual operation in case of power or hydraulic failure. Other features include an all-welded frame with high-arched design, extra-heavy front axle, heavy-duty final drive, and interchangeable hydraulic cylinder components.

Enter 325 on Reader Card

Double Drum Car Puller

HEWITT-ROBINS, INC., Jones Machinery Division, Stamford, Conn., has developed a two-way, double-drum car puller for easier and safer moving and

(Continued on page 166)

Higher Tonnage at Lower Cost with . . .

BECAUSE OF . . .

- **SIMPLICITY OF DESIGN**
  Easy, low cost maintenance.
- **ELECTROMAGNETIC DRIVE**
  Continuous, trouble-free operation.
- **VARIABILITY OF FEED RATE**
  Easy controlled rate of feed to meet operation capacities.

SYNTRON

GRIZZLY BAR SCREEN

Double Service—both feed and screen

These heavy duty SYNTRON Grizzly Bar Screens are designed for double service—both feed and screen in one operation. Feeding coarse materials to hammer mills, crushers, etc, at the same time screening out the fines to prevent clogging of operations. Constructed to withstand abuse of impact loads of stone or heavy rock day after day, without noticeable damage. SYNTRON Electromagnetic Grizzly Bar Screens with controlled feed rate delivers higher output with better separation than is possible with stationary grizzlies. Designed and built for easy, low cost maintenance, long dependable trouble-free service.

Model F-55 Grizzly Discharge Feeder padding the belt with fines to protect it from Rock.

Other Syntron Equipment of proven dependable Quality

GASOLINE HAMMER ROCK DRILLS

Completely self-contained — Easily portable. Automatic rotation of drill steels. Drills at rate of 2 feet per minute. Blows holes clean 13 feet deep.

FLOW CONTROL VALVES

Designed to provide positive flow control and shut off of bulk materials from bins, hoppers, chutes—or controlling ready-free air for heating, ventilating or drying.

a-c to d-c POWER CONVERSION UNITS

Low cost a-c to d-c power conversion in one package—Saves floor space—eliminate costly maintenance. Contain heavy-duty Selenium Rectifiers—automatic voltage regulator.

Write for catalog data—FREE

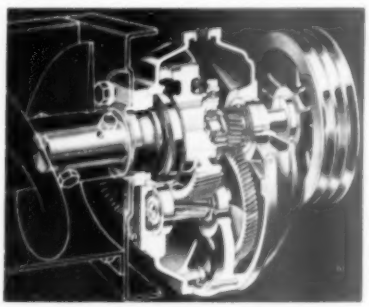
SYNTRON COMPANY
450 Lexington Ave. Homer City, Penna.

Enter 1524 on Reader Card

spotting of freight cars on railroad sidings. The puller consists of two cable drums driven by an electric motor through a triple reduction herringbone gear reducer and a reversing mechanism. One end of a cable, guided by sheaves, is fastened to one of the dual drums; the other end is fastened to the second drum. At midway points in the cable along each track are "bull" rings to which short lengths of cable-carrying car hooks are attached. To move a car, or cars, a hook is slipped over a car sill or through the car coupling, and the puller is operated in forward or reverse, by push-buttons. Twelve to 14 loaded cars can be moved at a time.

Operating advantages claimed for the new car puller include: an enclosed reducer connects the motor to the cable drums, eliminating danger of injury to personnel; the motor shuts off autotmatically at the extreme ends of cable travel; no one has to handle the cable; if desired, by use of a closed TV circuit, the puller can be manned by an operator at a remote point; gears are roller-bearing-mounted and completely enclosed; clutch sleeves and all shifting elements are protected by flexible bellow-type guards; limit switch drive gears are of non-rusting bronze construction and are well guarded.

Enter 333 on Reader Card



Speed Reduction Unit

THE AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Penn., has introduced the American Screw-King Drive, a new speed reduction unit for screw conveyor applications. A flange adaptor permits bolting directly to the trough end of a screw conveyor. The output shaft fits into the end of the pipe of a standard 6-, 9-, or 12-in. screw having a bore of 1½-, 2-, or 2 7/16-in. The input shaft of the unit is driven from a motor of any make by a short center V-belt drive.

The direct drive shaft eliminates the need for a separate drive-end shaft, and drive shaft bearings which are

(Continued on page 168)

Enter 1504 on Reader Card

Cuts your hauling costs!

Tournapull Rear-Dump overcomes most maintenance problems of conventional haulers

Construction of Tournapull Rear-Dump is radically different (and much simpler) than that of a conventional heavy-duty hauler. In place of a foundation frame and body sub-frame, Tournapull Rear-Dump hitches rear and front wheels through a horizontal yoke extending back from the kingpin, and pivoted to body itself just above and ahead of rear wheels. Body is simpler, much stronger . . . has no frame and sub-frame to get out of line.

Look at the photo above . . . note the absence of springs, spring hangers, and tie rods. Low-pressure tires adequately absorb the shocks of rough haul-road travel and shovel loading. Eliminated are spring maintenance, replacement time, and cost of spring parts.

Front-wheel drive and kingpin-type power steer helps simplify Tournapull construction, too. No longer must power be carried back to the rear through a drive-shaft. Bearing and lubricating problems of a long drive-shaft are eliminated. No longer is steering handled by small front wheels subject to "bulldozing" and misalignment. There are no tie rods, no hinged steering connections to become twisted or bent.

Nor do you have the troubles of hydraulic hoists or gravity dumping with these Rear-Dumps. Dump is by an electric winch, that lifts the body up on twin cables. Operation is under complete control at all times — with positive power for dump and return controlled by an electric switch on the dash. There are no oil seals, hydraulic pumps . . . no high-pressure lines and jacks to keep tight . . . no freezing up in cold weather as with hydraulics. There are no shock loads as in gravity dumping. You save on regular maintenance time because there is no hoist mechanism to check . . . only a few places to inspect and lubricate.

Let us show you how these savings can put money in *your* pocket. For proof, we'll be glad to show you performance figures from a job like yours. Or, if you wish, we'll give you names and addresses of nearby owners of Tournapull Rear-Dumps, so you can check the facts for yourself.

Model D — 11 tons, 138 hp

Model C — 22 tons, 208 hp

Model B — 35 tons, 293 hp

Now available with optional tailgate. Prime mover also powers interchangeable scraper, bottom-dump, flat-bed, crane, logging arch.

Tournapull—Trademark Reg. U.S. Pat. Off. R-1171-G-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

an integral part of the unit eliminate the need for a drive-end bearing. Design incorporates a dust seal, high capacity to absorb screw conveyor thrust loads, and compactness. The Screw King is made in three sizes from ½ to 10 hp., each with three reduction ratios: 5 to 1, 13 to 1, and 20 to 1. The Screw King, with its companion V-belt drive, provides any screw conveyor speed from 15 to 290 r.p.m., with adjustable speeds available if desired. Trough ends are also furnished by American Pulley Co.

Enter 326 on Reader Card

Distribution Analyzer

THE SHARPLES CORP., 2300 Westmoreland St., Philadelphia 40, Penn., has introduced the Sharples Micromerograph for use in conjunction with the Sharples Super Classifier. The Micromerograph is an instrument which provides rapid (15 min. to 3 hr.) particle size distribution determinations of powdered materials. Housed in one wall-mounted unit requiring 14- x 28-in. floor space and a 9-ft. ceiling, the machine requires 115 volts, a-c, 60 cycles, 100 watts.

The unit operates as follows: A well deagglomerated cloud of particles is introduced into the top of a sedimentation column, and the particles are allowed to fall onto the pan of a servo-electronic balance at the bottom. The accumulating weight on the pan is instantaneously counter-balanced by an electrical current and recorded on a moving chart milliameter. The chart, a record of weight vs. time, is converted into a continuous particle size distribution curve through the use of a template incorporating Stokes' Law of Fall.

The Micromerograph is said to be useful both in production and quality control and as a research instrument. The operating range of the instrument encompasses a wide variety and size range of powders. Once acceptable limits for particle size distributions have been established, checking may be done by non-technical operators.

Enter 327 on Reader Card

Modified Speed Drives

DYNAMATIC DIVISION, Eaton Manufacturing Co., Kenosha, Wis., is now offering its Ajusto-Spede Drives with integral electrically operated fail-safe friction brakes or integral speed reducers. Two brake ratings are available—18 and 36 lb.-in. of torque. Speed reductions are available from 5:1 to 100:1, depending on the drive horsepower rating.

The small single package drive is a combination of a.c. constant speed induction motor, eddy-current coupling and electronic control. Standard modifications include either the friction brake or speed reducer. A simple connection to a standard power line is the only wiring required. All drives have a continuous constant torque rating through a 25:1 speed range.

Enter 328 on Reader Card

Gelatin-Core Explosive

ATLAS POWDER CO., Explosives Division, Wilmington 99, Del., announces Amocore, a new stripping and quarrying explosive consisting of a basic cartridge charge of Amocol, ammonium nitrate blasting agent, with a gelatin core. Amocore must be detonated with a high explosive primer; however, the continuous gelatin initiator insures complete detonation and eliminates the need for intermediate high explosive booster charges. Because detonating fuse alone may not explode it, holes loaded with Amocore can often be detonated at the point of maximum confinement by a high explosive cartridge primed with detonating fuse. The gelatin core also appears to improve the water resistance of the blasting agent. Wet holes have been fired successfully at a number of operations, the company claims. Amocore is available in 25- and 50-lb. cartridges, 5-in. dia. or greater.

Enter 329 on Reader Card

AZBE LIME KILN

(Continued from page 126)

trol between is to establish two level firing. This creates a finishing zone, within which the stone-core of the nearly completely burned lime is calcined more assuredly, and in a zone of temperature lower than could be obtained heretofore in any kiln.

The most reactive lime is soft burned, and it cannot be soft burned and fully calcined if its calcination is finished in the zone of highest kiln temperature. The lime varies much in size—volume of the largest being 20 or more times that of the smallest. If core of the largest is calcined out, the smallest will be overburned. If that is avoided, then the largest will carry core. Only through creation of the supplementary kiln zone can this be overcome.

Part II of the article will appear in a future issue of ROCK PRODUCTS. It will discuss the air circuit, combustion process, recirculating gas circuit, exhaust system, stone charging and lime drawing phases of the integrated vertical lime kiln gas producer system.

Superintendent A. E. Cline, Columbus Gravel Company, reports . . .

"SUPER-TEMPERED SCREENS Have Cut Our Screen Replacement Costs By 15 to 20%"

Using a 5′ x 10′ two-deck Deister Vibrating Machine, the Columbus Gravel Company, Columbus, Mississippi, produces about a quarter of a million yards of #4 to 1½" gravel per year.

This machine is equipped with Wissco Super-Tempered Precision Space Screens, according to Supt. A. E. Cline, "because Columbus Gravel is interested in long screen life *and* accuracy.

"Super-Tempered Screens have certainly proved that they give longer resistance to abrasion, vibration and fatigue," Mr. Cline continues. "In addition, they are easy to change and do not work loose under severe vibrating conditions."

The importance of proper grading at Columbus Gravel is emphasized by the fact that the state highway department makes daily plant inspections to check grading accuracy. "With our Super-Tempered Screens, we never have any trouble meeting these requirements," Mr. Cline reports.

The reason for the long life and amazing accuracy of Super-Tempered Precision Space Screens is simple. It's quality—quality that's built into them at every step. Special wire is oil-quenched for extreme hardness. It's then crimped to precision standards and woven extra tightly on heavy-duty hydraulic looms to assure accurate, uniform spacing under the severest vibration.

Find out how you can use Super-Tempered Precision Space Screens to best advantage in your own operation. Write or phone our nearest sales office today.

CF&I **SPACE SCREENS**

THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte Casper • Denver • El Paso • Ft. Worth • Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City Phoenix • Portland • Pueblo • Salt Lake City • San Antonio • San Francisco • Seattle • Spokane • Wichita

WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans New York • Philadelphia

CF&I OFFICES IN CANADA: Montreal • Toronto • **CANADIAN REPRESENTATIVES AT:** Calgary Edmonton • Vancouver • Winnipeg

4534

Enter 1513 on Reader Card

MANUFACTURERS NEWS

Hyster Co., Portland, Ore., announces that John V. Pearson has been appointed supervisor, tractor equipment advertising and promotion. He joined the company in 1951 as southeastern district representative for the tractor equipment division, and since 1953 has been assigned to tractor equipment division of the sales promotion department in Portland, Ore. Robert C. Shoemaker, supervising engineer of construction machinery, has been promoted to supervising engineer—patents and product analysis. T. Richard Hazel has been appointed supervisor of the construction machinery design section in addition to his duties as supervising engineer of the tractor equipment division, and Ronald A. Johnson, supervising engineer in charge of the standards division, has been assigned the I.B.M. engineering and catalog files.

John V. Pearson

The Yale & Towne Mfg. Co., Philadelphia, Penn., has appointed Joseph J. Murray as manager of the New York industrial lift truck sales and service branch of the materials handling division, and Christian G. Kramer has been named sales representative in the Erie, Penn., area, which includes the counties of Erie, Warren, McKean, Potter, Tioga, Cameron, Elk, Jefferson, Forest, Clarion, Venango and Crawford. A new sales and service branch has been opened in Los Angeles, Calif., to service counties of Los Angeles, Orange, Riverside, San Bernardino, Inyo, Ventura, Santa Barbara and San Luis Obispo and a portion of southern Nevada.

General Electric Co., Schenectady, N.Y., has announced the appointment of Robert L. Toner as Philadelphia district manager for two-way radio units through much of Pennsylvania and New Jersey, with headquarters in Flourtown, Penn. M. Jerry Jones has been named district sales representative in Redwood City, Calif., and Peter H. Bliss has been made district sales representative in the Columbus, Ohio, area. He was formerly communication engineer in Cleveland and will be succeeded by Edward C. Lapp.

Atlas Powder Co., Explosives Development Section, Wilmington, Del., has in operation a mobile Rockmaster exhibit on a converted Volkswagen Microbus, designed to demonstrate the effectiveness of latest explosives, loading procedures and techniques of safe, efficient quarry blasting. Movies and slides show details of actual blasts to illustrate principles of controlled blasting. The exhibit also carries a library of technical literature, charts and diagrams.

Edick Laboratories, Inc., Milwaukee, Wis., has appointed Robert Beasley as representative in eastern New York, eastern Pennsylvania and New Jersey, where he will work with concrete products manufacturers. The company develops chemicals and electronic equipment for the concrete industry.

Peerless Pump Division, Food Machinery & Chemical Corp., Los Angeles, Calif., has announced the appointment of Max H. Richter, Jr., as sales engineer in Louisiana and Arkansas, and George Ries as sales engineer in Ohio.

Hercules Motors Corp., Canton, Ohio, has promoted Walter L. Brough from assistant to the president, John C. Keplinger, to executive vice-president. He joined the firm in 1954 after serving with the Republic Steel Corp.

Raymond Bag Corp., Middletown, Ohio, has announced the following appointments in the multiwall bag division of Albemarle Paper Mfg. Co.: T. H. Bacon, assistant sales manager, Middletown; C. W. Ingham, director of research and development, and E. H. Pyle, packaging engineer, Chicago; D. F. Wicks, eastern district sales manager, New York; T. B. Athey, mid-atlantic district sales manager, Baltimore; S. G. Shetter, central district sales manager, Middletown; and R. W. Drury, Jr., western district sales manager, Kansas City.

Hewitt-Robins, Inc., Stamford, Conn., has opened a San Francisco sales district for the industrial products division, with Theodore C. Zinter as manager. The new district covers the northern half of California, most of Oregon and Washington, and portions of Idaho, Montana and Nevada. Mr. Zinter was formerly manager of the belt sales and development department at Buffalo, N.Y., and will be succeeded by Merrill H. Hickey, manager of belt design.

Detroit Diesel Engine Division, General Motors Corp., Detroit, Mich., has established regional offices in New York, Atlanta, Detroit, Chicago, Dallas and San Francisco, with the following regional managers: L. A. Steele, New York; R. W. Phillips, Atlanta; J. C. Campbell, Detroit; D. E. Schwendemann, Chicago; Eric Sutton, Dallas and R. L. Burpee, San Francisco.

Link-Belt Co., Chicago, Ill., announces that John R. Fuller has been appointed sales manager of the Pittsburgh district of the Hewitt rubber division. He was formerly assistant district manager for U. S. Rubber Co. at Houston, Texas. Announcement has also been made that the Cleveland office has been moved to 3592 Lee Road. J. D. Riley is manager of the Cleveland district.

Hercules Powder Co., Wilmington, Del., announces that John R. Ryan has been named assistant director of sales for the explosives department. He was formerly manager of explosives operations and will be succeeded by Homer W. Coleman, who has been doing technical sales and service work for the department since 1948.

Eaton Mfg. Co., Cleveland, Ohio, has announced that an expansion program, involving total expenditures of approximately $3,500,000 is underway at the axle division, including construction of a new building and purchase of new production machinery and equipment, which is scheduled for completion by mid-1957.

The Jeffrey Mfg. Co., Columbus, Ohio, has opened a warehouse and sales office in San Francisco, Calif. at 1862 Rollins Road. Stanley M. Mercier is manager of sales; William T. Davis, application engineer, and Henry G. Neubaumer, warehouse manager.

Wickwire Spencer Steel Division, The Colorado Fuel & Iron Corp., New York, N.Y., has released a sound-color film entitled "Quality Unlimited," describing the manufacture of wire rope, from basic steel making to testing of the finished product.

Bemis Bro. Bag Co., St. Louis, Mo., has appointed H. V. Kindseth as director of research. He joined Bemis in 1931 and has been supervisor of the research laboratory of the department of physical research in Minneapolis since 1952.

Heltzel Steel Form & Iron Co., Warren, Ohio, announces that R. O. Boden has been appointed general manager to succeed Carl J. Heltzel, president, who will devote more of his time to company policy.

Stauffer Chemical Co., New York, N.Y., has announced a merger with the West End Chemical Co.

(Continued on page 172)

To Build Better Roads Today...

THESE WHITES are ENGINEERED for MAXIMUM WORK

These rugged and husky Whites are built for extra operating efficiency on America's biggest construction jobs. Built for more work, and built for longer life, too! You can count on White quality to stand the big payloads . . . off-the-road service . . . continuous schedules.

White Bolted Construction makes frames tougher, more rugged

Engineered for faster schedules, bigger payloads

Powerful White Mustang Engines

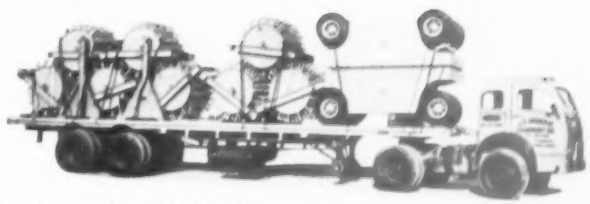
Whites Have Stamina and Rugged Power

Only White engineers these husky trucks for the construction industry exactly to each work requirement. No doubt about White . . . and its ability to get *more* work done!

Rugged Construction of Every Unit—Every Feature

Let WHITE Show You

We can do the same kind of creative engineering for you—tailor your equipment to exact operating conditions for greatest earning power. See or call your White Representative.



White Quality Keeps Operating Costs Down

BUILD BETTER ROADS TODAY FOR A GREATER AMERICA

AT THE ROAD SHOW
Booth 811 • Donovan Hall
International Amphitheater
CHICAGO
Jan. 28 • Feb. 2

White

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

FOR MORE THAN 55 YEARS THE GREATEST NAME IN TRUCKS

Enter 1530 on Reader Card

Joy Mfg. Co., Pittsburgh, Penn., has announced the appointment of James A. Drain as vice-president and general manager of the mining and construction division, and Hugo C. Helmick as vice president and general manager of the industrial division. John E. Moody has been appointed district manager of the Boston industrial district sales office, replacing Don L. Archibald.

The Oliver Corp., Chicago, Ill., announces that Samuel W. White, Jr., manager of the industrial sales division, and Donald W. Koegle, manager of domestic farm machinery sales, have been elected vice-presidents. Edward H. Fisher, vice-president and formerly manager of the industrial sales division, has been appointed manager of the special products division.

Columbia Machine Co., Vancouver, Wash., announces that Richard C. Spady and Robert W. Carlile have been appointed sales representatives in California, Arizona, Nevada, Colorado, New Mexico and Utah. New offices and warehouse facilities have been established at 3510 W. Burbank Blvd., Burbank, Calif., with Paul Hugill as manager.

Chain Belt Co., Milwaukee, Wis., announces the acquisition of General Road Machines, Inc., Niles and Newton Falls, Ohio, which will be operated as a wholly-owned subsidiary. Donald T. Heltzel, president of General Road Machines, continues as general manager, and J. J. Marcello, vice-president of General Road Machines, is sales manager.

Cummins Engine Co., Inc., Columbus, Ind., announces the sale of certain assets of Cummins Diesel Sales Corp., Charleston, W. Va., to the recently formed Cummins Engines of West Virginia, Inc. President of the new corporation is L. E. Williams, who has been manager of distribution of Cummins Engine Co.

United States Rubber Co., New York, N.Y., has appointed R. F. Knobloch as midwestern belting sales engineer for the conveyor and elevator belting department, with headquarters in Chicago. He was formerly a sales engineer in the Passaic, N.J., office of the belting department.

Fulton Bag & Cotton Mills, New Orleans, La., announces that Clarence E. Elsas, executive vice-president, has been elected president of the company, succeeding R. O. Arnold who has resigned to devote full time to private interests.

McKiernan-Terry Corp., Harrison, N.J., announces that J. A. Farnsworth has been appointed a sales engineer for the Mead-Morrison division, in the territory around and to the east of Pittsburgh, with headquarters in Harrison, N.J.

Acme-Hamilton Rubber Mfg. Corp., Trenton, N.J., announces the appointment of William McNeil as manager of the New York district sales office. He was formerly sales engineer for Harnischfeger Corp. in New York and New England.

The White Motor Co., Cleveland, Ohio, has announced the appointment of L. B. Philippi as off-highway field representative for the Autocar division. He was formerly eastern regional sales manager for the Dart Truck Co.

Baker-Raulang Co., Cleveland, Ohio, has moved the Dallas, Texas, branch office to 1703 Levee Street. M. S. Stevenson, formerly a district sales manager, has been appointed manager of the Dallas branch.

The American Pulley Co., Philadelphia, Penn., announces the purchase of the materials handling division of the Market Forge Co., Everett, Mass. Nathaniel Warshaw has been made manager of the division.

1956 has, in many respects, been a record year for us . . . characterized by advances in technology and an all-time high in volume of new orders and also billings throughout the world. This meant a year of strenuous adjustment due to the necessity of increasing our productive capacity to parallel our growing volume of business.

The acquisition of the Merco Centrifugal Co. of San Francisco on February 1, added centrifugals to our product line. This natural outgrowth of our cyclone work has proven to be a most successful move. Similarly, the year has demonstrated the strength of our new Canadian subsidiary, Dorr-Oliver-Long of Orillia, which became the newest member of our corporate family on January 1, 1956. Yet another step in the overall corporate growth picture was the completion of plans to add the ninth member of our overseas family, Dorr-Oliver Pty. Ltd. of Australia on January 1 of 1957.

Steps in matching our productive capacity to our growing needs included a million dollar expansion of our Hazleton plant scheduled for completion at the year's end and the opening of a sizable new production facility nearby in Pennsylvania. Currently, a long term expansion and reallocation program is underway which will step-up our ability to produce, and to serve, still further.

Growth and change in other operating areas of the parent company also kept pace.

A broad reorganization of our domestic sales structure added new geographical divisions and was principally designed for better sales coverage and service. In engineering, the pressure of increased volume resulted in the opening of a branch engineering office in Pennsylvania, close by our East Coast plants, which has proven to be most worthwhile.

FERTILIZER — One of the highlights of the past year was the largest single D-O order ever received involving a phosphoric acid and 200,000 ton per year triple superphosphate plant for a Florida producer. The scope of our services on this project includes architect-engineer design, supply of equipment and construction materials, and supervision of erection and initial operation of the plant.

Other major design projects undertaken during the year were a 350,000 ton per year complete granular fertilizer plant in Great Britain, a 350 ton per day ammonium phosphate installation in Montana, and a phosphoric acid plant for Venezuela designed to produce 50 tons of P_2O_5 per day. During the year construction of a D-O engineered Scottish granular fertilizer plant was virtually completed, and Traveling Pan Filters were ordered for the difficult gypsum-phosphoric acid separation in a number of new chemical fertilizer plants around the world.

SANITATION — The new Spirovortex-Superate Filter will produce a degree of purity comparable to that attained using the activated sludge process in plants treating up to one MGD of domestic sewage. We have developed the Degritting Clarifier and Clarigester for low cost grit removal in small plants and during the year we have incorporated important new features into the design of our Vacuum Filters for the sanitary field.

The completely D-O equipped sewage treatment plant for Karachi, Pakistan, represents the largest order in the sanitary field ever entered by our associates in The Netherlands. Typical of other new D-O equipped installations are those under construction in such diverse locations as Charlottesville, Virginia; Caldwell, Idaho; Midwest City, Oklahoma; Delhi, India; Nairobi, Kenya; and Rio de Janeiro, Brazil. Expansion of Providence, Rhode Island, treatment facilities calls for installation of nine Dorr Clarifiers, all over 100 feet square, and at Louisville, Kentucky, four 275 foot long Monorake units will be added.

METALLURGICAL — Recently placed on the market, the DSM Screen is an ingenious, high capacity screen capable of separations as fine as 200 mesh. Adapted from the Dutch design, the unit has operated very successfully on coal and will handle a wide variety of non-fibrous feed slurries. Other highlights of the year include a number of Thickener-Filter combinations and Bowl Desiltors installed in Eastern coal fields, a D-O equipped iron ore washing plant in California, and a variety of cement plant expansion equipment orders.

RESEARCH AND DEVELOPMENT — As a matter of policy, fundamental research continues on our expanding line of basic unit operations. The principle of operating in many different but allied fields stimulates situations wherein fundamental research can produce new and useful products and processes. Such is not possible when interest is confined to but a few basic operations, as in our early years.

Similarly, general company development is continuing the search for new products allied in some manner with our experience and facilities. In this search we count heavily on the assistance and cooperation of our Associates throughout the world.

ALUMINA AND MAGNESIA — Plant expansions in both fields contributed heavily to the year's business as four of the world's major alumina producers in the Gulf Coast area and Jamaica ordered a total of 45 Filters, 20 Thickeners and 26 low pressure pumps of various types and sizes. In Michigan, three magnesia-from-brine plants will add a variety of agitation, filtration and thickening equipment; while a West Coast magnesia-from-sea water producer will employ extensive D-O equipment.

POLYETHYLENE — Our contribution to one of today's most spectacular and rapidly growing fields — polyethylene — is the Merco Pressure Centrifuge, developed specifically for high pressure, high temperature operation. The basic unit was developed, designed and manufactured in record time to keep pace with the expanding industry. First commercial Centrifuges will go on stream early in 1957 separating catalyst from liquid polyethylene.

FLUOSOLIDS SYSTEMS — A large steel producer in the United States finalized plans for a new fine coal washing plant using a two Reactor FluoSolids Coal Drying System designed to handle 600 tons of metallurgical coal per hour. In the non-metallics field, three fluidized Reactors went into operation — two in the Detroit area drying blast furnace slag used in cement manufacture, and the other calcining clay in Scotland. Systems are now under construction to dry and pre-heat oyster shells and to calcine Massachusetts limestone.

Four new installations in Japan will roast 265 tons of zinc concentrates daily, producing both a readily usable calcine and SO_2 bearing gases for contact sulfuric acid manufacture. During the year two installations in the U. S. and South Africa operated successfully roasting copper for direct electrowinning. And pyrite roasters were ordered for a Canadian uranium mill, Chilean and Nicaraguan copper concentrators, French and Philippine fertilizer plants, and two Scandinavian pulp mills. In all, 21 fluidized Reactors were sold in 1956.

URANIUM — Four new or expanding uranium mills in the United States and Canada will employ a wide variety of types and sizes of Agitators, Thickeners and Classifiers to perform the various leaching, dewatering and classification steps. One of these — a West Coast installation — will also install a d-i system to concentrate and purify uranium bearing solution.

INDUSTRIAL WASTES — D-O equipped treatment plants handling chemical wastes were installed by a German and two British chemical manufacturers. The former installation incorporates the first D-O equipment to be purchased for this purpose in Germany since World War II. Next year two Southern pulp mills will clarify wastes in giant 300 foot Thickeners installed in earthen basins, and a U. S. steel company will recover flue dust in a completely D-O designed installation. Two similar flue dust recovery stations were also ordered from our British subsidiary during the year.

The year's impressive record of sales and technical accomplishment has been made by the hard work of our staff in every corner of the globe. The success of our operations naturally rests wholly with them, despite the importance of the tangible facilities and tools with which we work. In the year now drawing to a close this was again demonstrated, and as the tools and facilities we give them expand and become of better quality, so will our staff be able to produce greater volume and increasing returns.

J. D. Hitch, Jr.
President

November 20, 1956

Enter 1509 on Reader Card

BLACK'S DREDGE SLEEVE CLAMPS

STURDY • PRACTICAL • DEPENDABLE • ECONOMICAL

Furnishes a positive seal for round flexible joints. Used by leading dredging and hydraulic sand-and-gravel operators, and the U. S. Engineering Corps. This Multi-use chain sleeve clamp is easy to apply . . . positive in action. Write for illustrated folder, today.

THE BLACK BROTHERS CO., INC., 505 9th Ave., Mendota, Illinois

Enter 1547 on Reader Card

SAVE FUEL!

With a continuous record of O_2 CO_2 and Combustibles of the kiln exit-gas before him, the burner can regulate combustion to obtain maximum fuel economy, and high quality clinker production. Cambridge Gas Analyzers give him this essential record, accurately, quickly and continuously. Customers tell us that these instruments pay for themselves many times over! ***Models available:*** **Single point O_2, two point O_2 Combustibles, three point O_2-CO_2-Combustibles.** ***Send for literature.***

CAMBRIDGE GAS ANALYZERS

CAMBRIDGE INSTRUMENT COMPANY, INC.

3520 Grand Central Terminal, New York 17, N. Y.

PIONEER MANUFACTURERS OF PRECISION INSTRUMENTS

Enter 1549 on Reader Card

25" DURACLONE

RECOVERS 8 TONS OF SAND PER HOUR

Installation of 25" Duraclone at California Materials Company plant, Sunland, California.

Designed to recover fine sand from the overflows of washers, the Duraclone keeps sand ranging from minus 30 to plus 200 mesh from the waste ponds, thus enabling producers to meet the most exacting specifications.

A 25" Duraclone in the sand circuit will handle a volume of 700 gpm from the classifier overflows, extracting from 5 to 8 tons of clean fines per hour.

A 4" sand pump, running at about 1400 rpm, and powered by a 20 hp motor, forces the feed to a rubber-lined cone at approximately 18 psi.

ANALYSIS OF FINE SAND RECOVERY

	% RETAINED	% PASSING
30M	8.7	91.3
50M	63.2	36.8
100M	89.6	10.4
200M	97.7	2.3

FOR COMPLETE INFORMATION WRITE TO

H. B. LARGE ENGINEERING COMPANY

267 SO. PARKWOOD AVE. PASADENA, CALIF.

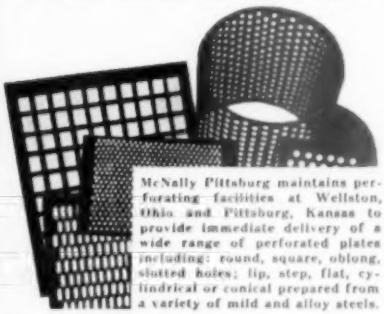
Phone SYcamore- 2-7820

Enter 1548 on Reader Card

designers and builders of equipment for basic industries

IMMEDIATE DELIVERY

PERFORATED PLATES



McNally Pittsburg maintains perforating facilities at Wellston, Ohio and Pittsburg, Kansas to provide immediate delivery of a wide range of perforated plates including: round, square, oblong, slotted holes; lip, step, flat, cylindrical or conical prepared from a variety of mild and alloy steels.

For Basic Industries McNally Pittsburg offers:

• SERVICES •

Engineering Design Field Erection
Research & Development

• EQUIPMENT •

Conveyors	Pug Mills
Crushers	Screens
Dryers, Centrifugal and heat.	Pumps, Valves, Piping
Washers, heavy media and jig	Car Hauls, Dumpers
Kilns	

McNALLY PITTSBURG

MANUFACTURING CORPORATION

• OFFICES •

Pittsburgh, Pa. First National Bank Bldg.

Chicago, Illinois 307 N. Michigan

• PLANTS •

Pittsburg, Kansas

Wellston, Ohio

Enter 1550 on Reader Card

AMSCO PUMP APPLICATION FILE

at: PACIFIC PEBBLES, INC.
PACIFIC, MISSOURI

"We've used our AMSCO® pump since 1947 . . . no major breakdowns experienced yet"

Pacific Pebbles, Inc., have been operating their 12" Amsco pump continuously since its installation in 1947. The pump operates on a 30-foot pipeline with a 30-foot lift. According to Mr. C. H. Baker, plant superintendent, this Amsco pump has operated with a minimum of maintenance and no major breakdowns during that period.

Mr. Baker estimates that the shell had an average life of 12 to 16 months and the impeller 6 to 10 months. Pacific Pebbles uses Amsco pipeline fittings and welds to build up the shell.

Mr. Baker states, "In over 25 years of using Amsco pumps, I have been more than pleased with their good service and small maintenance . . . which accounts for the no-major-breakdown record that I am proud of."

QUICK FACTS ABOUT AMSCO PUMPS

Whether your dredging operation is large or small, you can get an Amsco Dredge Pump to handle the job. Standard sizes range from 6" to 20" discharge openings. Larger sizes are also available. An Amsco Pump Engineer will be glad to discuss your requirements, or write for Bulletin 1052P, giving full information and specifications on the Amsco line.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

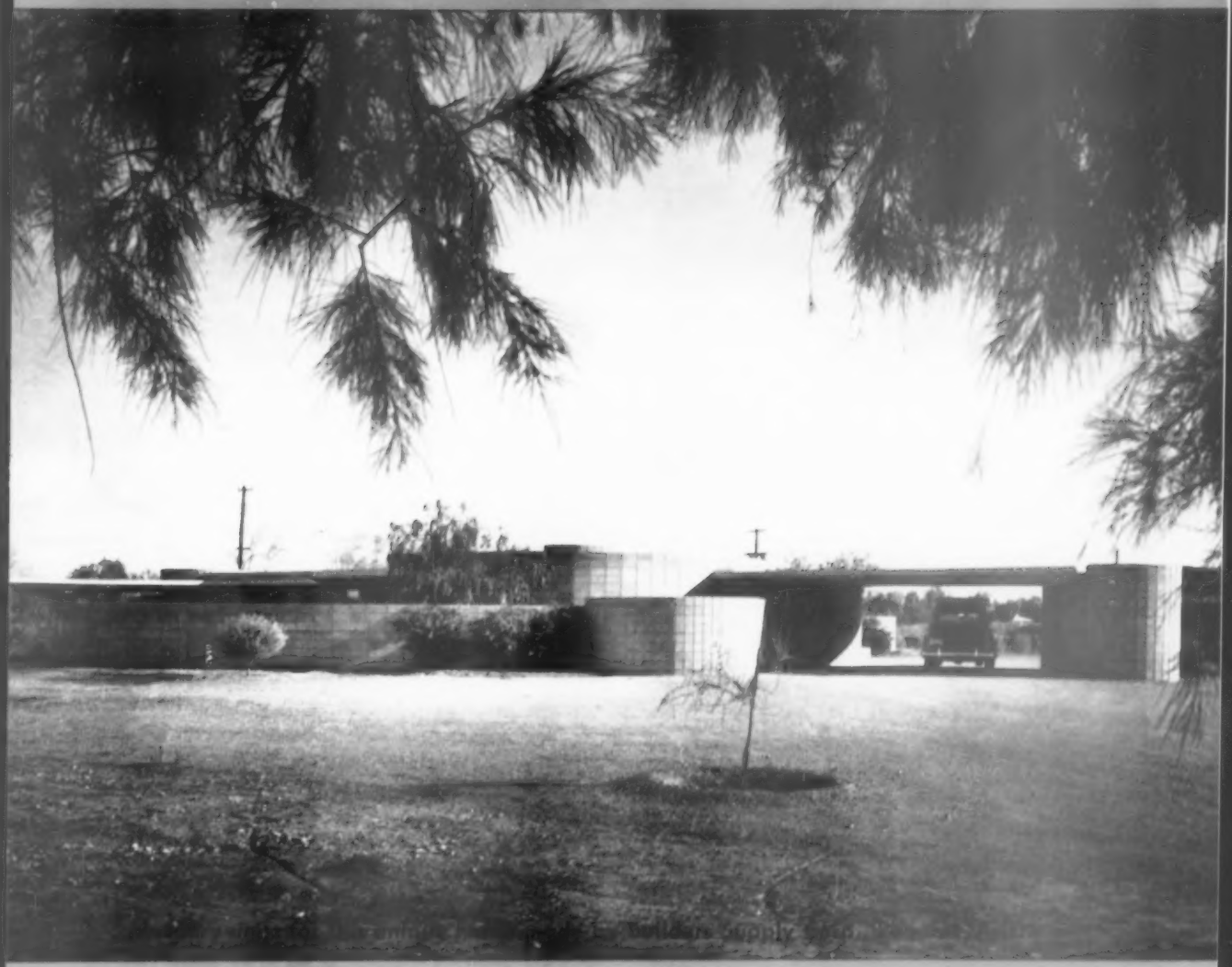
OTHER PLANTS IN: DENVER LOS ANGELES NEW CASTLE DEL. OAKLAND, CAL. ST. LOUIS JOLIETTE, QUEBEC

Enter 1432 on Reader Card

CONCRETE PRODUCTS

A SECTION OF ROCK PRODUCTS

CONCRETE UNITS · READY-MIXED CONCRETE



One of the World's Largest Block Plants Selects BERGEN

TRI-MATIC Machines Installed in Huge Plant of Canada Concrete Products, Inc.
Montreal, Canada

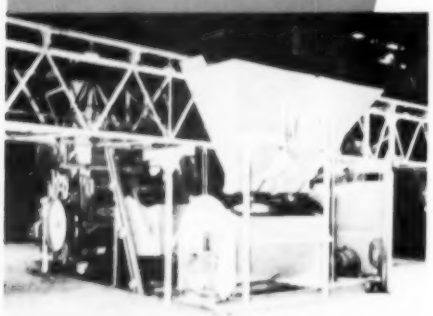
Under the able leadership of Miron Bros., Canada Concrete Products, Inc., has become one of the largest block plants in the world, housing 6 block machines under one roof — 4 BERGEN TRI-MATICS and 2 other machines completely modernized by BERGEN.

This plant includes complete facilities for material storage, block production, curing, cubing and storage. A company owned quarry, capable of producing 12,000 tons per day, supplies material for aggregate.

Interior view showing battery of BERGEN TRI-MATICS.

Each block machine is equipped with a BERGEN Front Pallet Feeder, Height & Density Control, Off-Bearing Hoist, Elevator and Batch Mixer. Two double rack capacity automatic electric turntables were installed for each machine.

A central batcher and mixer supplies 150 tons of material per hour to the six machines. More than 80% of the cured block goes directly to the delivery truck from the cubing station, eliminating block handling and storage.



View of a BERGEN Skip Hoist and 50 cu. ft. Batch Mixer installed on each of the six machines.

Whether you operate a one machine plant or a six machine plant, BERGEN equipment is designed to produce more, better quality block — consistently. Whatever your needs, write or phone BERGEN "Collect".

See the COMPLETE BERGEN BLOCK EQUIPMENT DISPLAY at the NCMA Annual Concrete Industries Exposition, Kiel Auditorium, St. Louis, Mo., February 25-28.

BERGEN
MACHINE & TOOL CO., INC.

NUTLEY, N. J.

PHONE "COLLECT"
NUTLEY (N. J.) 2-7300

Enter 1434 on Reader Card

INDUSTRY NEWS

Cover Picture

ON THIS MONTH'S CONCRETE PRODUCTS COVER is shown an unusual home built of concrete masonry in Phoenix, Ariz. The curved design permitted unusual interior treatment. The architect is Blaine Drake of Phoenix and the owner is Howard Scoville. Block were supplied by Builders Supply Corp., Phoenix, Ariz.

N.C.M.A. Convention, Exposition Scheduled

NATIONAL CONCRETE MASONRY ASSOCIATION will hold its thirty-seventh annual convention and tenth biennial Concrete Industries Exposition, February 25-28, in Kiel Auditorium, St. Louis, Mo. In the four-day meeting, emphasis will be given to promotion, sales and technical aspects of block production. The exposition, occupying 25,000-sq. ft., has increased available exhibiting area 40 percent.

One of the principal speakers will be G. Herbert True, marketing consultant and assistant professor at the University of Notre Dame. His topic is: "Have You Had a Profitable Idea Lately?" Association activities and projects will be outlined by staff personnel. Shadowal block will make its formal debut.

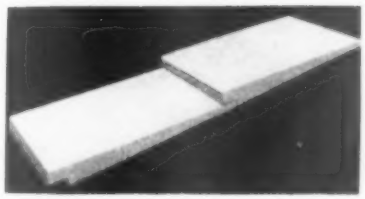
Promotion and technical meetings will run concurrently Wednesday, February 27, from 10 a.m. to 1 p.m. Another technical session will be held Thursday morning, as well as one dealing with local, state and regional associations. The afternoons are left free so that delegates may attend the exposition.

Builds New Block Plant

SUPER CONCRETE CO., Cumberland, Md., is erecting a new $200,000 block plant on Mt. Savage Road which will have a capacity of 1180 block per hour. The plant has been designed to provide facilities for production of prestressed concrete beams, joists, columns and lintels at a later time. The firm handles building supplies and ready-mixed concrete.

New Texcrete Quarters

TEXCRETE STRUCTURAL PRODUCTS CO., Dallas, Texas, announces transfer of its engineering and sales divisions to new offices at 2230 Chalk Hill Road, Dallas. Headquarters were previously at 1309 Main St.



Concrete roof tile in Bermuda style

New Precast Roof Tile

ZONOLITE CO., Chicago, Ill., has brought out Zonolite Bermuda Roof Tile, designed for application on top of built-up roofing, providing a terraced effect. The tile, available nationally, measure 19½- x 12-in. and are 2½-in. at the thickest point. They are lightweight, have insulating qualities, and may be painted any desired color.

Durox Plant Opens Soon

UNITED STATES DUROX CORP. OF COLORADO, Denver, Colo., is erecting a $500,000 plant, first of its kind in the U.S., for the manufacture of cellular concrete block. The 80- x 600-ft. plant is being built on a 10-acre site and is scheduled for operation in April.

The Durox process has been used in Sweden for about 30 years. Block are said to be lightweight and to possess high strength and sound insulating characteristics. It can be sawed, nailed, bored and hewn with common woodworking tools. In Sweden buildings up to five stories high have been built of Durox without any additional structural reinforcement, it is reported.

Robert P. Anderson is president of Durox and Karl L. Lagnefors, vice-president. Licensing in other parts of the U.S. will probably follow the Denver plant opening.

Installs Autoclave

CAROLINA QUALITY BLOCK CO., Greensboro, N.C., has installed a 10-ft. dia. x 90-ft. autoclave which can hold 2700 block. Heat for the high-pressure steam curing process will be provided by a new 500 hp. boiler. Robert M. Dinkel is president of the firm which is engaged in a $250,000 improvement project.

Changes Offices

CONCRETE MATERIALS CO. announces the change of address of its main office from 504 Lafayette Building, Waterloo, Iowa, to Box 8, Cedar Rapids, Iowa.

HALES CORNERS BLOCK CO., Hales Corners, Wis., began operations recently at a new $160,000 plant, having a daily capacity of 7200 8-in. block. Owners are Henry Nagy and Arthur Hintz, who also operate West Allis Concrete Products Co. and Waukesha Block Co.

WISCONSIN CONCRETE PRODUCTS, INC., Green Bay, Wis., has been formed with an authorized capital stock of 1000 shares of common at par value of $100 per share. Incorporation papers were signed by Royal W. Fenn, Donald P. and Emil J. Pauly.

KEARNEY CONCRETE CO., Kearney, Neb., with authorized capitalization of $100,000, was incorporated recently by Everett R. Jones, L. W. Lawler and Eldon Chamberlin, all of Beatrice, Neb.

BUILDERS CONCRETE PRODUCTS, Cambridge, Ohio, was placed in operation recently. Present capacity is 1200 block daily. David Puzzoli, Wheeling, W. Va., is owner and operator.

NEBRASKA PRESTRESSED CONCRETE CO., Lincoln, Neb., listed its authorized capital stock at $250,000. Incorporators are George P. Abel, R. E. Eichelberger and C. W. Hansen, all of Lincoln.

ATKISSON TRANSIT MIX-CONCRETE AND GRAVEL CO., Omaha, Neb., filed articles of incorporation. Authorized capitalization is $200,000 and incorporators are William Atkisson and C. James Child.

BLASDELL READY MIX CORP., Blasdell, N.Y., has been sold to Pine Hill Concrete Mix Corp., Buffalo, N.Y. This brings to four the number of branch plants now being operated by Pine Hill.

PETERSBURG CONCRETE PIPE & PRODUCTS CO., INC., Richmond, Va., was granted a charter. Stanley R. Navas is president of the firm which has maximum authorized capitalization of $300,000.

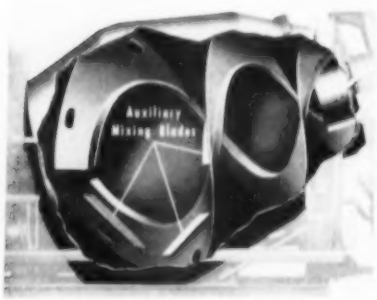
NEELLEY'S READYMIX CONCRETE, INC., Waco, Texas, was authorized with capital stock of $25,000. Incorporators were Edwin D. Neelley, W. O. Russell and H. H. Latimer Jr.

NORTH STAR CONCRETE CO., Mankato, Minn., is constructing a new plant northwest of Rochester, Minn., scheduled to be ready for spring operation.

Fast...thorough MIXING pays off two ways

A thorough mix being discharged fast into buckets through the Westinghouse fold over chute. Chute can be used in 5, 8 or 12 ft. lengths or can be swung away for direct discharge by simply pulling two pins. Three of 11 Westinghouse mixers in fleet of Ryan Ready Mix Concrete Co., Brooklyn and Long Island, N. Y.

This is the Westinghouse mixing drum with deep spirals plus 6 auxiliary mixing blades, each 36" x 7". The extra blades produce a criss cross, extra mixing action which results in a thorough, uniform mix in jig time.



Enter 1454 on Reader Card

On-the-job mixing, required on many jobs, injects a definite "mixing time" element into your trip cycles. The faster your mixers can produce the proper mix the quicker they can get back to the plant for the next load . . . Because of their "double-action" mixing blades Westinghouse mixers cut this time to a minimum. On short haul mixed-in-transit trips Westinghouse mixers are ready to pour on arrival where others would have to stand and complete the mixing.

At the same time Westinghouse mixers produce a thorough, uniform mix which pays off in customer satisfaction and that builds up repeat business.

Big operator likes Westinghouse for other reasons too

The job pictured here is that of pouring footings on a state highway job at Freeport, Long Island, N. Y., where four 6½ yard Westinghouse machines, mixing on the job, maintained a constant pour into buckets for Ryan Ready Mix Concrete Co. Ryan, which operates 120 mixers out of their three plants (1 in Brooklyn and 2 on Long Island) introduced 11 Westinghouse machines into their fleet early in 1956. Of their performance Mr. Edward Ryan, Secretary and manager of operations, says, "Our Westinghouse machines are working out very satisfactorily—they load, mix and discharge well. We like their simple design and sturdy construction. They are easy to operate and service. The enclosed-gear drum drive and ball and socket drum mounting appeal to us. Over the lifetime of the machines they should reduce our maintenance costs considerably."

Take a look at Westinghouse

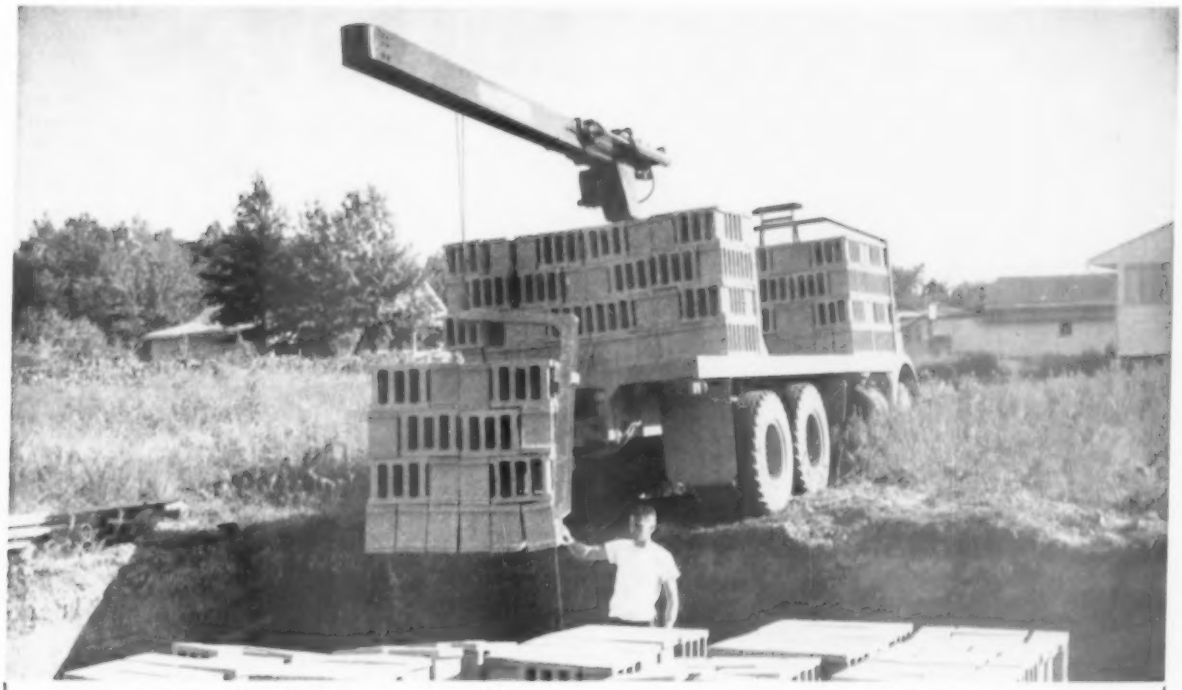
Westinghouse mixers are growing in popularity, steadily, with those operators who *know* them. They're available in 4½ to 6½ sizes with the equipment you require. Before buying another mixer consider the Westinghouse. Write today for new 1957 catalog which highly illustrates and describes Westinghouse advantages or see your local dealer.

TRANSIT WESTINGHOUSE MIXER

WESTINGHOUSE TRANSIT MIXER DIVISION

LeTourneau-Westinghouse Company, Indianapolis 6, Indiana

Member of National Ready Mixed Concrete Association



Contractor customers request SIDE-O-MATIC delivery. Driver alone, can make eight deliveries a day, sets block cubes in cellar around excavation—saving contractor's time, too!

"...THE SIDE-O-MATIC FITS INTO ANY MAN'S FLEET, WHO PRODUCES AND DELIVERS BLOCKS TO SATISFY HIS CUSTOMERS"...

Fizzano Brothers
Crum Lynne, Pennsylvania

DON'T TAKE OUR WORD FOR THE SIDE-O-MATIC – THESE ARE THE THINGS OUR CUSTOMERS ARE SAYING ABOUT THE PATENTED SIDE-O-MATIC UNLOADER: (Patent Nos. 2,772,794 and 2,772,795)

Investigate—Compare they said . . . and we looked at them all . . . in the future, when we buy again, we will surely get another Side-O-Matic.

"This unloader has first proved to be a great time and labor saver. In an 8-hour work day we have made as many as eight deliveries . . . been able to unload . . . where a roll-off type truck would be impractical."

City Cement Block Company
Bridgeport, Connecticut

"We find the Side-O-Matic has many advantages. You can put block down in the average foundation setting any one single cube wherever the contractor may want it. We have realized quite a savings in block handling . . . hauling 720-8" units on our White tandem . . . impressed by fine appearance."

Nitterhouse Concrete Products
Chambersburg, Pennsylvania

"Our Side-O-Matic is working out, we are very well pleased with the job it is doing. We feel it easily replaces 2 to 3 semi-trucks . . . customers have purchased blocks here because we have a Side-O-Matic Unloader to put the blocks in the basement . . . means better service at less cost."

Allen County Concrete Products, Inc.
Lima, Ohio

" . . . we know we made the best choice. Especially from the contractors' viewpoint and every other customer of ours . . . we are able to place our block, and brick, where they are wanted, at the handiest place for the customers without moving the block as you would have to do if a whole load of 800 block would be dumped on one place . . ."

Adolf Jandris and Sons, Inc.
Gardner, Massachusetts

WRITE TODAY FOR FULL DETAILS

SIDE–O–MATIC UNLOADER CORP.

POST OFFICE BOX 1561, YORK, PENNSYLVANIA • PHONE YORK 7357

Enter 1492 on Reader Card

Stop in and See Us at Booth 724!

BUILD BETTER ROADS TODAY · FOR A GREATER AMERICA · See you at the ROAD SHOW CHICAGO Jan. 28-Feb. 2, 1957 AMERICAN ROAD BUILDERS ASSOCIATION

heat treating doubles Rex Blade life

It isn't likely that you ever have needed to replace the drum blades on your Rex Moto-Mixer...but just on the chance that you're operating in a territory where the aggregate is unusually abrasive, Rex Blades are now heat treated—assuring you greatly increased life under severe service.

This hidden feature is exclusive with Rex. It's another plus value in Rex leadership engineering.

Rex Adjusta-Wate Moto-Mixers® are available in all standard sizes—with auxiliary drum power or with FEPTO, the new Front Engine Power Take-Off that rotates your drum at speeds unaffected by declutching and gear shifting. See your Rex Distributor or write CHAIN Belt Company.

CHAIN BELT REX COMPANY

DON'T PENALIZE YOUR PROFITS

ADJUSTA-WATE MOTO-MIXERS®

LEADERSHIP...THROUGH CREATIVE ENGINEERING

CHAIN BELT COMPANY / 4649 W. Greenfield Ave., Milwaukee 1, Wis.

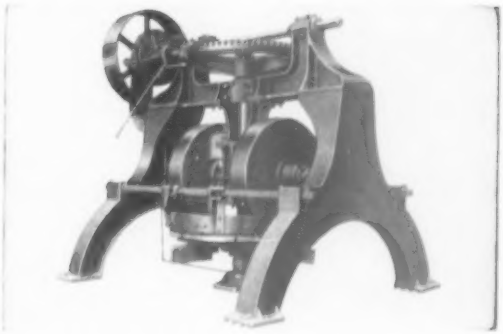
Enter 1439 on Reader Card

BIG VOLUME GRINDING at Low Cost

Ideal For Aggregate Grinding

- Delivers up to 30 yards per hour.
- Handles material wet or dry.
- Grinds cinders, pumice, haydite, slag and quarry and mine products.
- Adjustable to meet volume and size requirements.
- Requires only minimum maintenance.
- Gives years of trouble-free service.
- Has low power consumption.

Huber-Warco Grinders range in capacity from 4 to 75 yards per hour. Whatever your capacity requirement, there's a Huber-Warco Grinder exactly suited to your type of aggregate. Ask for a non-obligating consultation with the Huber-Warco grinding specialist . . . write, wire or phone.



HUBER-WARCO NO. 9 GRINDER

This 30 yard per hour capacity grinder has been designed to give big volume aggregate production with a minimum of grinding costs. The suspended yoke mounted mullers are adjustable to any height, and for finer grinding, the grinding surfaces run together.

HUBER W WARCO

HUBER-WARCO COMPANY

MARION, OHIO, U. S. A.

Road Machinery

CABLE ADDRESS: HUBARCO

ROAD ROLLERS • MOTOR GRADERS • MAINTAINERS • GRINDERS

Enter 1440 on Reader Card

LEHIGH EARLY STRENGTH CEMENT
speeds production of prestressed bridge units

For maximum production efficiency, Juno Prestressors, Inc., uses Lehigh Early Strength Cement in the manufacture of prestressed concrete units for Florida State Road and Turnpike bridges.

With Lehigh Early Strength Cement, their prestressed beams, for instance, reach the specified strength of 4000 P.S.I. in ½ the time required with regular cement . . . without the use of any accelerated curing methods. This makes it possible to expedite the movement of the finished products and to *double the output of casting beds* without Saturday or Sunday work.

Whatever your cement requirements, there are Lehigh Cements to fit them. And remember, in the manufacture of special precast units, chances are that Lehigh Early Strength Cement will save you time and cut production costs.

LEHIGH PORTLAND CEMENT COMPANY

ALLENTOWN, PA.

LEHIGH EARLY STRENGTH CEMENT
LEHIGH MORTAR CEMENT
LEHIGH PORTLAND CEMENT
LEHIGH AIR-ENTRAINING CEMENT

PRESTRESSED CONCRETE DESIGN SAVES FLORIDA TAXPAYERS 10%.

One of two bridges crossing St. Lucie and Indian Rivers in Martin County, Florida, erected by Cleary Bros. Construction Company. The prestressed concrete design saved Florida taxpayers 10% over other alternates.

Casting yard of Juno Prestressors, Inc. a subsidiary of Cleary Brothers Construction Company, West Palm Beach, Florida. Ready mixed concrete supplied by Rinker-Riviera Company, Riviera Beach, Florida.

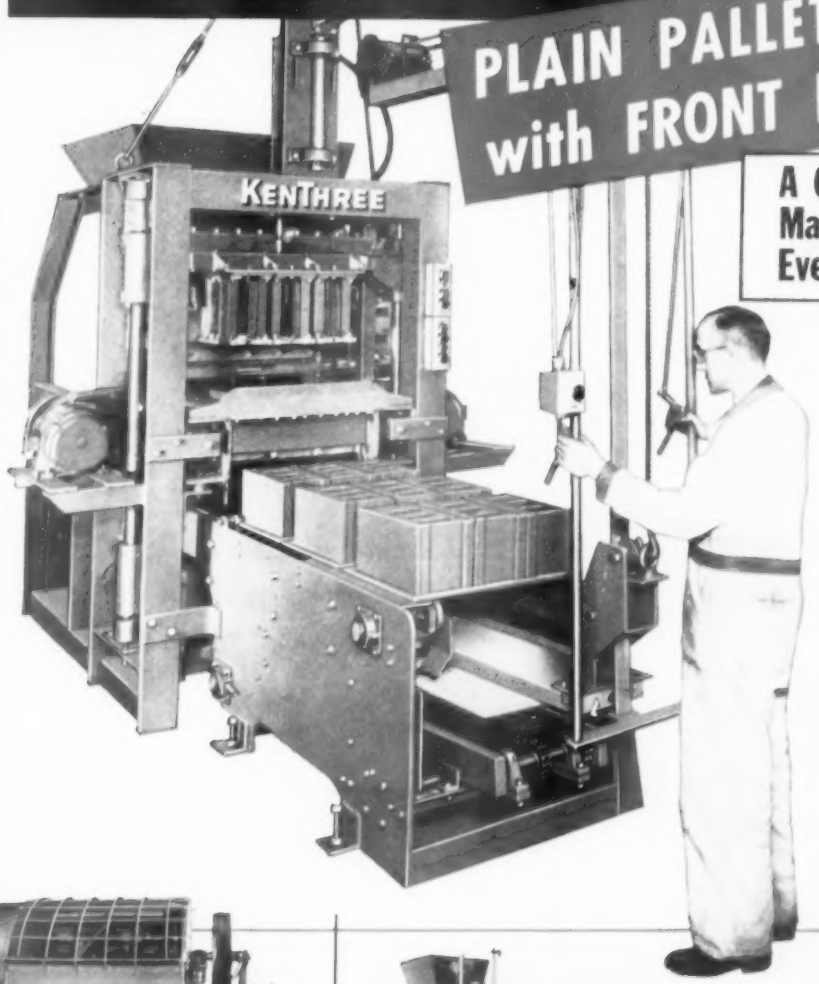
Pretensioned beam being placed. Beams are 47' 3" long, 3' deep. They measure 12" at the top, 18" at the bottom. Web is 6" thick. Piling is 20"x 20". Both beams and piles were made with Lehigh Early Strength Cement.

Enter 1493 on Reader Card

Enter 1494 on Reader Card

KENTHREE

PLAIN PALLET MACHINE with FRONT PALLET RETURN-



A Compact, Highly, Efficient Machine Incorporating Every Modern Technique.

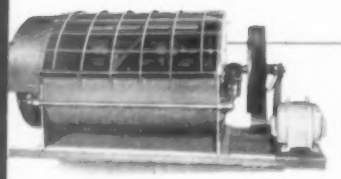
The amount of material, the time of agitation and vibration, accuracy as to size of the blocks, the forward movement of finished blocks, are all controlled electronically and hydraulically.

Electrically controlled hydraulic cylinders permit simplification of design with a sizable reduction in cost of production.

A magnetic spade permits the offbearer to pick up two pallets with three blocks on each and simultaneously drop two empty pallets, one of which immediately moves into position at each cycle.

The KENTWIN automatically produces three 8-inch blocks or equivalent at each cycle made from any aggregate.

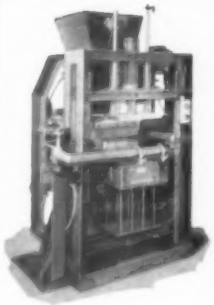
Furthermore, because of its simplicity it is possible to price this machine attractively. See it by all means or write for descriptive literature.



KENT BATCH MIXERS

incorporating many features that assure efficient operation, large output and long life.

Capacities—12 to 75 cu. ft. per batch.



KENT BLOCKMAKER

A fast, semi-automatic machine that is relatively low in purchase price and cost of operation.

Economically provides high quality, single cored blocks.

KENT LINTELATOR

A machine that can help you expand your sales and profits through the production of concrete lintels, which are being more and more widely adapted because they are more satisfactory and less costly than steel members.

SEE THESE MACHINES

AT THE

N. C. M. A. SHOW

KIEL AUDITORIUM

February 25th to 28th

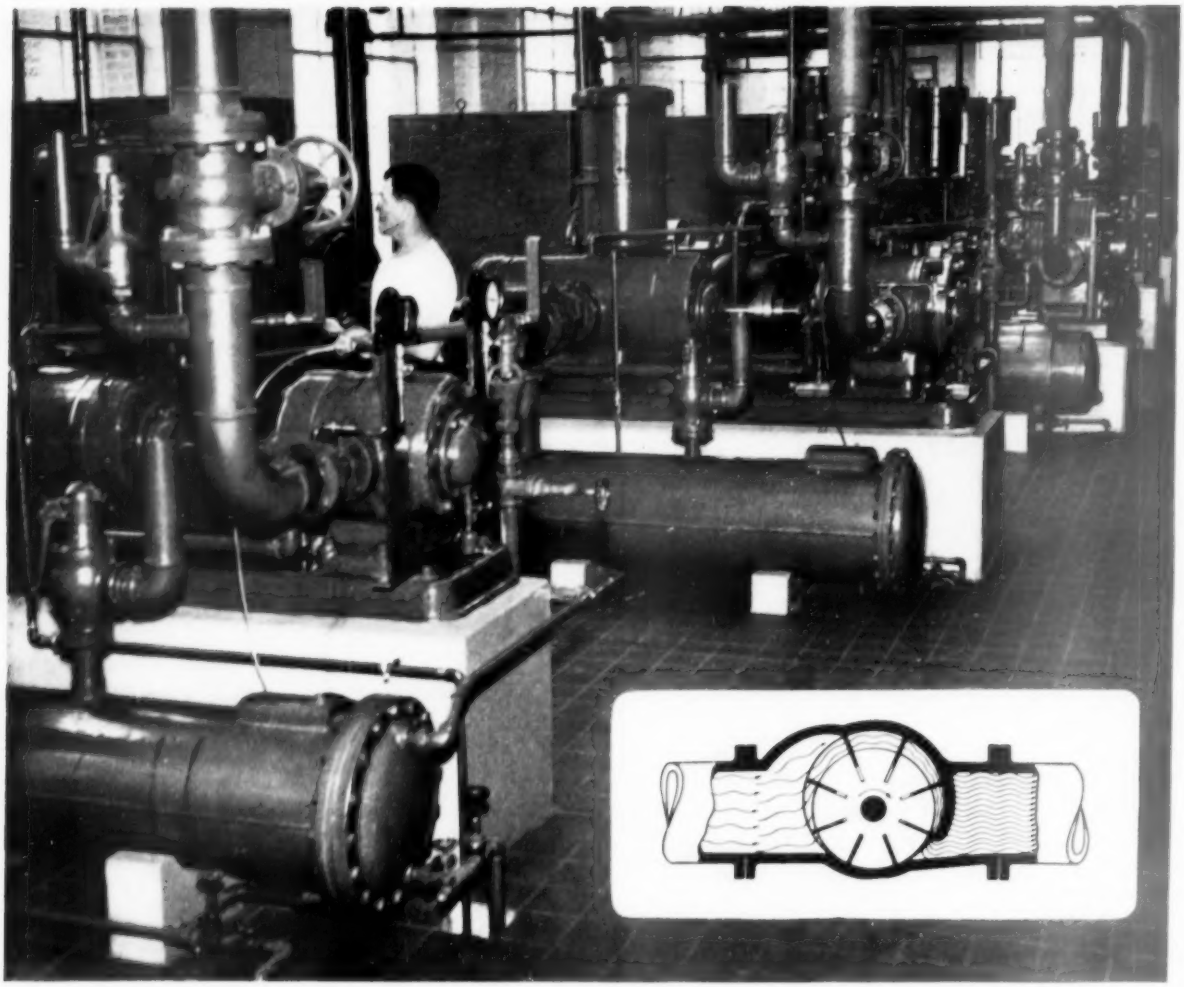
BOOTH "L"

You're also invited to spend a social evening with us at our suite in the Sheraton-Jefferson Hotel.

The KENT MACHINE CO.

CUYAHOGA FALLS, OHIO • *Division of The Lamson & Sessions Company*

Concrete Products Machinery Since 1925 **Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario**



Industrial Pressures Up To 125 psig
Capacities to 3300 cfm

When you need such performance, it will pay you to specify Fuller vane-type Rotary Compressors. They provide the simplest, most economical and most reliable source of compressed air for all pneumatic plant services.

These compressors have a minimum number of moving parts, (rotor, blades and bearings) employ direct-connected motor drive, and operate with an incredible lack of vibration. They run for days without requiring operational attention, and are ideal for continuous service in out-of-the-way locations.

Detailed information on design characteristics, and typical applications will be forwarded promptly on request.

VISIT US AT
THE CONCRETE INDUSTRIES EXPOSITION
KIEL AUDITORIUM, ST. LOUIS, MO.
BOOTH NO. 81 & 82 FEB. 25-28

Fuller
. . . . pioneers in harnessing AIR

FULLER COMPANY, 102 Bridge St., Catasauqua, Pa.

GENERAL AMERICAN TRANSPORTATION CORPORATION SUBSIDIARY

Chicago · San Francisco · Los Angeles · Seattle · Birmingham

C-269
1554

Enter 1455 on Reader Card

WOODS PACKERHEAD CONCRETE PIPE MACHINES

PRODUCE QUALITY PIPE AT A HIGH RATE OF SPEED... AT MINIMUM COST...

LENGTHS OF PIPE TO 96"

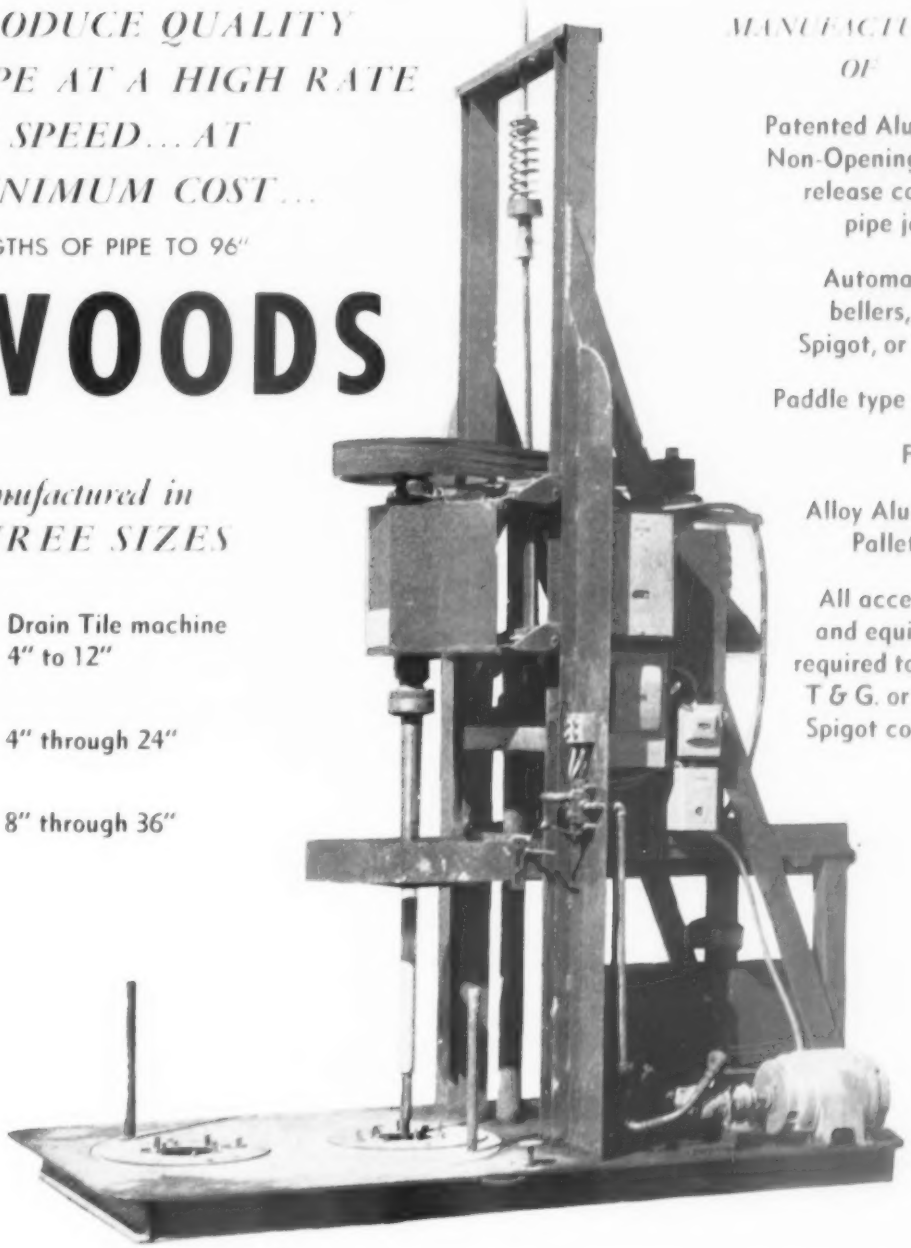
WOODS

Manufactured in THREE SIZES

1 - Drain Tile machine 4" to 12"

2 - 4" through 24"

3 - 8" through 36"



MANUFACTURERS OF

Patented Aluminum Non-Opening quick release concrete pipe jackets.

Automatic top bellers, Bell & Spigot, or T & G.

Paddle type mixers

Feeders

Alloy Aluminum Pallet Rings

All accessories and equipment required to make T & G. or Bell & Spigot concrete pipe.

WOODS CONCRETE PIPE EQUIPMENT

Post Office Box 1018 Telephone Elgin 2-4122 El Centro, California

Enter 1510 on Reader Card

Keep YEARS AHEAD TOMORROW

WITH ANY

WE'RE LOOKING FORWARD TO SEEING YOU

In Booth "D"
NCMA SHOW
Feb. 25-28
Kiel Aud., St. Louis

GOCORP "SUPER" TRUSTEE

Hydraulic

GOCORP "TRUSTEE"

NO DRAWING BOARD DREAM BUT THOROUGHLY FIELD TESTED—THE BIG, HEAVY DUTY, 3 at a time, PLAIN PALLET, "SUPER" TRUSTEE IS READY TO GO TO WORK FOR YOU NOW!

CONSIDER THESE FACTS!!!

- **HIGHER PRODUCTION**—Up to 1100 good blocks per hour, with many aggregates, *without abusing the machine.*
- **TOP QUALITY BLOCKS**—Fewer culls in production • Fewer rejects on the job • Variable cycle—for complete flexibility and constant control of quality • Accurate height control.
- **LOWER MAINTENANCE**—Hydraulic operation means fewer wearing parts • Smoother operation • The elimination of cams, cam followers and gears means big maintenance savings for you.
- **QUICK MOLD CHANGE**—Change full height molds in about 20 minutes—to other heights in about 30.
- **RUGGED CONSTRUCTION**—Heavy duty frame with heavy plate cross bracing — Heavy duty bearings — 5" dia. cross shafts • The "Trustee" is built to last.
- **NO BRAKE FAILURE**—"Trustee" vibrator motors are 10 HP plug reversing type • Designed for frequent stops and starts • No brakes to cause trouble.

Both the "SUPER" TRUSTEE and the new economy model, TRUSTEE "SPECIAL" (also a 3 at a time), will accommodate, without alteration, molds of the majority of plain pallet machines now in use. You can have all the advantages of the modern hydraulic TRUSTEES and protect your mold investment too!

AND THAT'S NOT ALL - *Ask about these other fast selling hydraulic TRUSTEE models:*

TRUSTEE "SPECIAL" . . . . . 3 at a time economy model
TRUSTEE 2½X . . . . . up to two 10 x 8 x 16" units per cycle and other combinations
TRUSTEE 2X . . . . . up to two 8 x 8 x 16" units per cycle and other combinations

IT COSTS LESS TO OWN A GOCORP . . . .
. . . . BECAUSE VALUE IS A GOCORP PRODUCT

GO CORP
ADRIAN-MICH.
407 Grace Street **Adrian, Michigan**

A good designer has a feeling for the problems of connecting structural elements, a knowledge of how much a crane can lift at a given radius, and the dimensional tolerances to allow in prestressed concrete

Steel Shortages and Structural Advantages

Boost the Demand for Prestressed Concrete

By ARTHUR R. ANDERSON

About the Author . . .

Arthur R. Anderson, the author of a series of articles on prestressed concrete starting in this issue, holds three engineering degrees: a B.S. in civil engineering, University of Washington, an M.S. in engineering from M.I.T., and a Sc.D. in civil engineering from the same school. His broad experience includes teaching at M.I.T., bridge design engineer in Germany, five years of technical service in industry, and as consulting engineer. He was consultant to the City of Philadelphia on structural tests of full scale girders for Walnut Lane Bridge, first prestressed concrete bridge in America. Since 1951, he has been co-founder and partner of Concrete Engineering Co., Tacoma, Wash.

A NEW INDUSTRY—prestressed concrete manufacture—is making an impressive impact on architecture, engineering and construction.

Recently the **Wall Street Journal** featured a front-page column under the headline "Prestressed Concrete Stars as a Substitute for Scarce Steel Beams." No one will doubt that the steel shortage has created a market for prestressed concrete. However, anyone giving serious consideration to entering the prestressed concrete business should have more than a structural steel shortage as his excuse for "jumping in."

Prestressed concrete construction has clearly grown from a substitution of material to a recognized and indeed preferred method of construction for many types of structures during the past six years.

To achieve economy, the number of types of structural elements in a structure should be a minimum, and the number of each type a maximum.

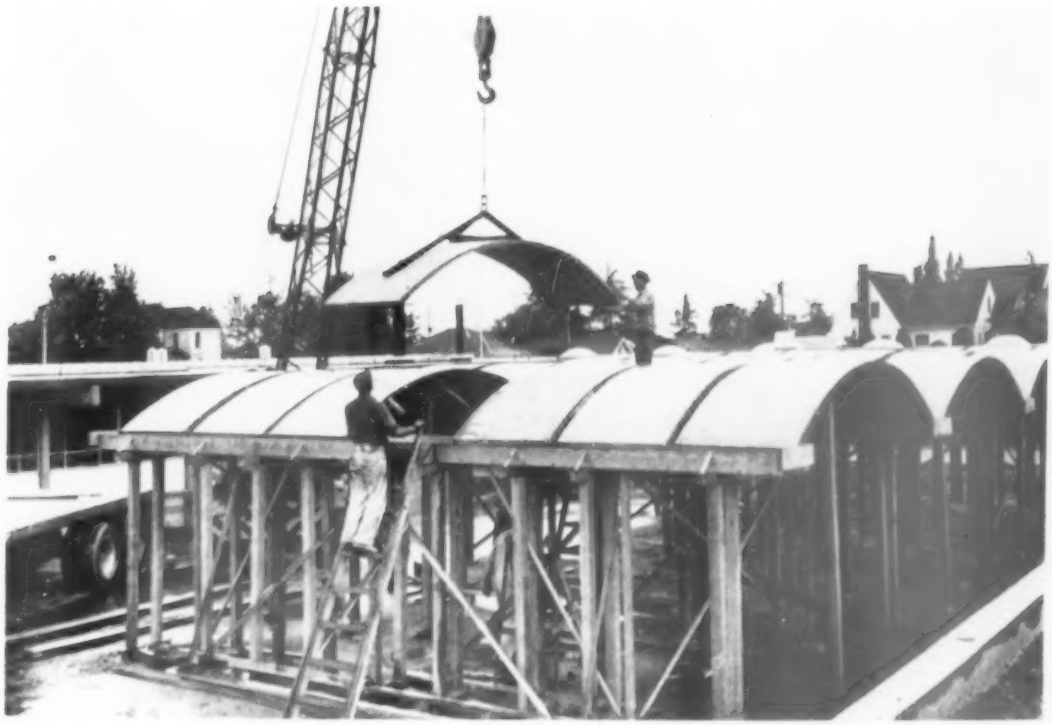
To build a successful prestressed concrete business, a potential investor should have answers to the following questions:

1. What is the potential market?
2. How can this market be developed?
3. What type of products should the plant produce?
4. What are the technological aspects, and what kind of people constitute the successful organization of a successful prestressed concrete business?
5. What kind of plant and facilities are required?
6. How much land is required for a suitable plant site?
7. How much money will be required?

For an investor, questions 1 and 2 are the most important. In the foreseeable future, the market potential for prestressed concrete appears excellent. The multi-billion dollar federal highway program will require thousands of structures ideally constructed from prestressed concrete. New construction of schools and other public buildings will continue at a high rate because of the tremendous population growth. Expansion in industry goes ahead at top level to keep pace with the increasing market for products demanded by a country having a constantly rising standard of living. Thus, a tremendous potential market for basic structural elements in prestressed concrete already exists.

Assuming that an investor decides to get into the prestressing business, he should get the best technical advice on how to get started. He should know the difference between post-tensioning and pretensioning, and the advantages of both systems. He should determine whether he wants to pursue an "on-the-job" or factory type of production. Both methods will have their place in the future of the construction industry.

The writer believes that the high standard of living in the United States has resulted from mass production of consumer goods in well-managed factories with production-line methods. For this reason, the future for the long range of prestressed



The writer believes that the future for prestressed concrete in the United States economy will be based on factory mass production of the structural elements.

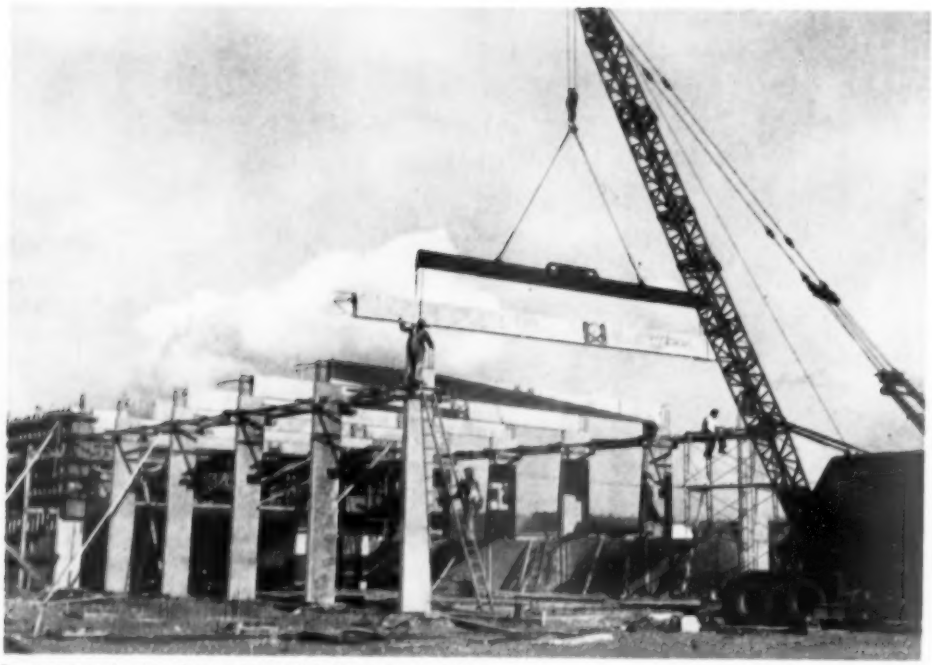
concrete should also be based on mass-production in a factory. This leads up to question 2 and above, "How can this market be developed?"

Promotion and selling prestressed concrete is highly technical. It would be extremely difficult for a salesman to make calls on prospective customers, and bring back a book full of orders. Selling prestressed concrete must start at the outset in the design of a new project. Selling of this kind requires a company representative capable of calling on engineers and architects at the preliminary design stage. The sales representative should be qualified to discuss intelligently the designer's problems, and above all, he must be well-armed with cost data. Just as it is with all types of engineering sales, the one best equipped with good technical answers has the best chance of eventually getting the order for his company.

In the writer's experience, progress in factory-produced prestressed concrete construction will be tremendously influenced by the ability and imagination of designers—the architects and engineers. Fortunate indeed is the company that has on its staff a design consultant with enough creative ability and imagination to develop structures of architectural composition having enduring beauty derived from the repetition of a few basic standard elements—in this case from precast and prestressed concrete turned out in mass-production. Thus, one of the big selling jobs in the prestressed concrete business is a service on "how to design it."

Not only is it important to keep the number of types minimum and number of each type maximum, but equally important are the details of the connections in the field. A good designer has a feeling for problems of connecting the structural elements, a knowledge of how much a crane can lift at a given radius, and what kind of dimensional tolerances to allow in precast concrete elements. He understands the forces and movements caused by temperature changes as well as those caused by deflection due to design loads. A good designer must also develop a sense of balance between material and labor cost as contrasted to European practice of trying to save every pound of material, yet the writer has seen many examples of prestressed concrete in the United States, where a considerable amount of material could be saved without increasing the labor cost.

"Why all the fuss about design to sell prestressed concrete?" will probably be asked by the reader. The answer to this goes back to the opening paragraph in this article regarding the use of



Fortunate indeed is the company that has on its staff a design consultant with enough creative ability to develop structures of architectural composition whose enduring beauty is derived from the repetition of a few basic precast and prestressed concrete elements.

Selling of prestressed concrete is highly technical. The sales representative must work with architects and engineers, and give them service on the "how" of design. He must be well-armed with cost data.

prestressed concrete as a substitute for scarce steel. When steel becomes plentiful again, where will the market be for prestressed concrete? Obviously, to be competitive with steel or other materials of construction, it must become a preferred material of construction, and this idea must be "sold" to the people who do the design. It will be up to the manufacturers of prestressed concrete to see that the designers are sold. To do this, the company looking for a market in prestressed concrete must be prepared to develop standard structural sections comparable to the standard rolled steel sections.

Moreover, the company must be in a position to produce these sections to a guaranteed performance, and finally, adequate design information about these standard sections must be made available to those in a position to specify them.

Above: Connie Bronder, operator; Mat. Catellaw, ready-mixed concrete and transportation superintendent; P. M. Hayden, operations manager; and J. N. Williams, Conveyor Co. representative

Overall view of portable ready-mix plant

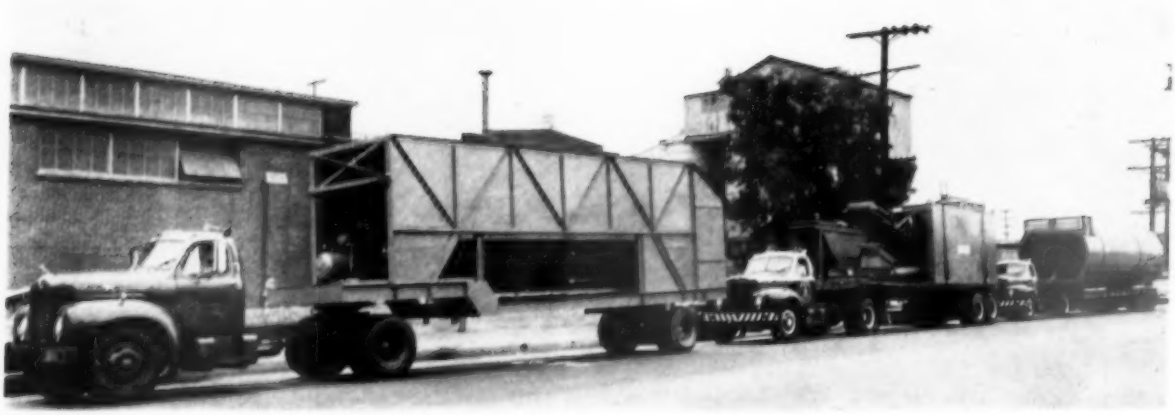
This R.M.C. Plant Can Be Moved in a Hurry

- Supplements stationary plant service
- Gives portability and high initial capacity

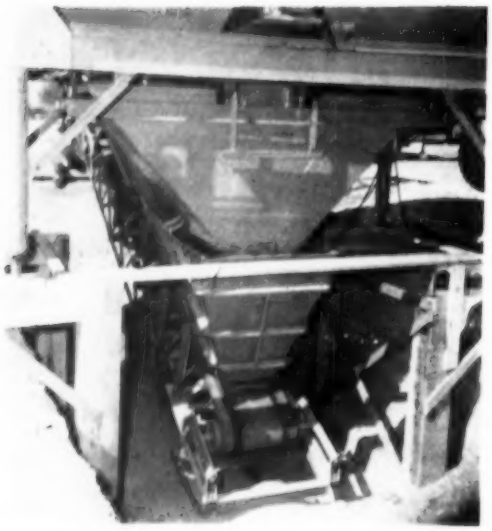
By WALTER B. LENHART

THE SERVICE ROCK CO., Colton and Riverside, Calif., recently placed in service a high capacity, portable batching plant that can be used for dry batching or for servicing ready-mixed concrete trucks. It is the first of its type to go into an established sand and gravel and ready-mixed concrete operation. The plant, which has several new features, is an example of the trend of established ready-mixed concrete producers to supplement stationary plant service with portable units. Designed cooperatively by the staff of the Service Rock Co., and the Conveyor Co., of Los Angeles, the main units were built by the Conveyor Co.

On some of the important jobs related to air field runways, irrigation, and flood control projects, contractors are required to deliver **at the**



Last two loads are here shown on semi-trailers, but normally they move on their own wheel assemblies by tractor and fifth wheel



Scale assembly of portable ready-mix plant

start of the job a minimum of 60 cu. yd. per hr. and to be able to gradually increase that yardage quite materially. To meet these conditions, a portable plant must have flexibility and high initial output. The new plant of the Service Rock Co. is meeting that need.

The new installation went into operation in mid-September on the Devil's Creek diversion job, a U. S. Army, Corps of Engineers project a few miles above Rialto, Calif. George Herz, San Bernardino, Calif., is the prime contractor. The project involves some 20,000 cu. yd. of concrete of which 4500 cu. yd. was batched into and delivered by ready-mixed concrete trucks of the Service Rock Co. From this plant the diversion channel is about 6000 ft. long. The bottom and ends of the project will use ready-mixed concrete with the remainder being placed by paving units and dry-batched mixes.

Only 4 hr. of crane time are required to erect it with no concrete foundations per se being required. A total time of 18 hr. can get the plant into operation.

For transportation purposes, the entire plant can be divided into sections and, with the exception of the 500-bbl. capacity cement silo, complies with California highway requirements. All units are 8 ft. wide or less. The production section is 8 ft. wide and 13 ft. 6 in. high, but Service Rock Co. has added a 3-ft. high extension to the hoppers over the weigh batcher. This extension can be easily removed. The main batching section is supported on eight jacks with the rubber-tired wheels left in place.

The portable batching plant can be hauled to the site in five loads; the cement silo, the main batching section, and a portable truck hopper for receiving the aggregates are pulled by semi-trailer tractor. Pick-up trucks can be used to tow each of the two conveyor sections. The heaviest section is the portable truck hopper and is Service Rock Co.'s contribution to this type of equipment. Instead of using conventional bulkheads for the semi-portable truck hopper, a rectangular, all-steel, box-like unit is used. It is mounted on removable rubber-tired wheels and includes a feeder belt conveyor for delivery of materials to belt conveyor No. 1 that serves the bins over the batcher. All that is necessary to get the truck hopper into service is to spot it in place, connect up the motor, and build a dirt ramp to and from the hopper. Several variations of rubber-tire mounting of the truck hopper are being considered. One is to have removable wheels at the rear of the unit, and another is to have the wheels permanently fixed to the hopper and protected by a steel shield. These will be buried or partially so when unit is in use.

Connie Bronder at the controls with recorders to the right

Belt conveyor No. 1 is a second innovation of the Service Rock Co. It employs a 30-in. portable inclined belt conveyor that works on the same principle as a radial stacker. This radial unit, however, rides on two No. 900 x 20 truck tires and wheels instead of the more conventional steel track and flanged wheels. The wheels ride on a radial ribbon of high-early-strength concrete, 36 in. wide. If ground conditions are satisfactory no footing is needed for the wheels. The wheels are powered by a 3-hp. motor connected to a dry fluid coupling into a 10 to 1 reduction unit and to a jack shaft that has another 10 to 1 reduction giving the radial unit wheels 25 f.p.m. of travel. The main belt travels at 493 f.p.m. All conveyors are equipped with Yuba-Shrock motorized head pulleys.

The use of the radial feeder belt to the bins is built around the idea of being able to unload aggregates continuously, for, in the event the bins over the weigh batcher are filled, the radial belt unit can be moved to either end of the arc and the material ground stored. This material is then picked up by a Hough Payloader and put in the truck hopper at a more opportune time. The base or pivot section of the stacker is a self-levelling unit supported on a precast concrete slab foundation. This slab is roughly 5 x 5 ft. in area and 8 in. thick. It is pinned to the ground by four truck axles so that the foundation cannot turn with the stacker. The truck hopper serving this belt holds about 8 tons of aggregate.

Communication between haulage units to and from the plant is controlled by two-way radio. Trucks, pick-ups, staff service wagons, plant and main offices are equipped with General Electric UHF (Ultra High Frequency) band units. The company has 37 inter-comm radio sets in use in the area.

Three sizes were being used: ¼-in. to ¾-in.; ¾-in. to 1½-in. and concrete sand. Aggregates are trucked to the site from the new Rialto plant of the Service Rock Co. The haul is two miles on a gravel road that the company constructed through the flat desert-like country to the portable set-up.

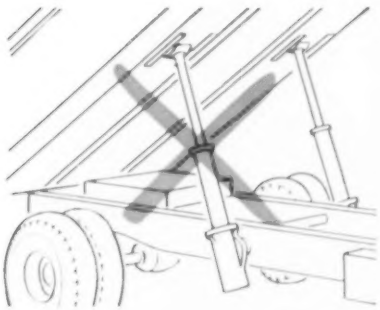
The portable plant is compact and self-contained. The bucket elevator for the portland cement is in a housing inside the silo. The air compressor and drive is installed at one end of the main frame and the control and scale room at the opposite end. The four hoppers over the weigh batchers, with the extension top, hold a total of 80 tons of aggregates. The weigh batcher delivers 1½ cu. yd. with 20 seconds as the batching time. Brown weigh recorders are on the two dial scales; one for the aggregate, and the other for the portland cement. The scales are equipped with Conveyor Co. electronic weigh controls. Batched material falls to the 30-in. off-bearing belt conveyor which delivers to trucks.

Electric power for the plant is supplied by a 75 k.v. Caterpillar diesel-electric set with a D-13000 engine being the prime mover. The plant has a connected load of 73 hp. All U.S. electric motors have arc-type connectors so they can come apart easily.

The Service Rock Co. is an affiliate of Owl Enterprises. D. H. Burden is president; P. M. Hayden is operations manager; Mat Castellaw is transportation superintendent and in charge of all the ready-mixed concrete plants for Service Rock Co.; and Connie Bronder is operator of the portable plant.

GRAVITY dumps the load...in

ONE second



Koehring Dumptor® *has no body hoist*

Operator drives up, trips the body-release lever — and *gravity* tilts the 6-yard body 70 degrees. One second later the load is out, and Dumptor is on its way back for the next load. It's as simple and fast as that!

There's no 15 to 25-second wait for slow-acting body hoists — no expensive hoist replacement parts, maintenance or down-time. And, you get the same one-second dumping *every time*, under heaviest loads, in all temperature extremes, because Koehring *gravity-dump* never balks — never wears out.

One-second dumping earns a substantial increase in yardage output, too. For example — take a typical 1,000-foot haul where you would normally make 16 trips an hour. By saving an average of 20 seconds dump-time on each trip, Dumptor gains 320 seconds, or 5.3 minutes more productive haul-time per hour. You get 17½ trips, instead of 16. This, alone, adds 9% to hourly production.

This saving is typical of Koehring Dumptor's basic principle — to reduce all non-productive time to a minimum — to increase work-time for more yards per day. See Koehring distributor for complete information.

KOEHRING COMPANY

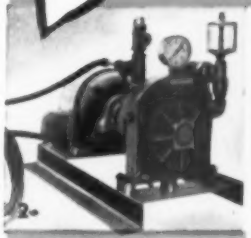
MILWAUKEE 16 WISCONSIN
CK640

Subsidiaries:
JOHNSON
PARSONS
KWIK-MIX

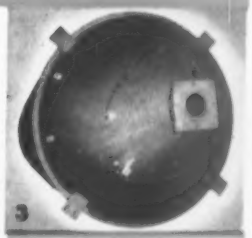
HAVE YOU OVERLOOKED ANY OF THESE IDEAS?

There are places in your batching and mix plants where these low-cost Johnson accessories can profitably increase efficiency on the storage and batching of aggregates and cement . . .

1 **Pivoted Distributor**
feeds aggregates into multiple section bins. It turns and locks into position by ground-level control.

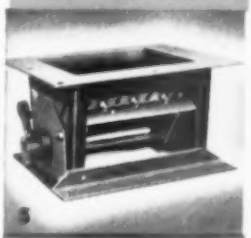


2 **Rotary Vane Compressor**
supplies 7 cu. ft. of air pressure per minute to aerate cement silos and bins. Has 15-pound limit-relief valve.

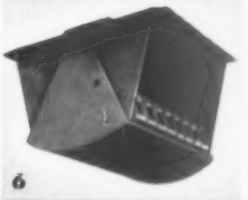


3 **Aeration Fittings**
properly spaced in storage silos and tanks keep bulk cement fluid and free-flowing at all times.

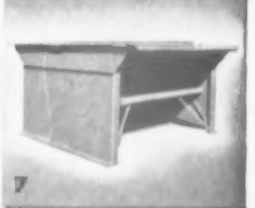
4 **Bin Gauges and Signals**
accurately register "hi-lo" levels of aggregates or cement. They are dust-proof . . . operation is automatic.



5 **Rotary Plug Valve**
controls flow of cement from silos into screw conveyors. It's also used as a fill valve in cement batchers.



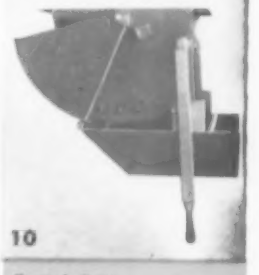
6 **Aggregate Fill Valves**
single-clam, radial-type, have choker weights for jam-proof closing with large aggregates. Hydraulic pressure lub.



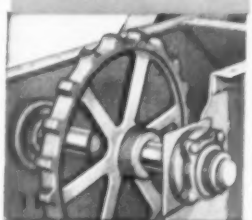
7 **Receiving Hoppers**
all sizes, types for box-car, hopper-bottom car, truck, or bag delivery of cement. All-welded, weather-tight.

8 **Elevator Buckets, Chains**
2 types, 7 sizes of buckets for aggregates and cement. Long-life steel chain has carburized knuckles.

9 **3-Way Elevator Discharge Valve** is a flop-type chute which directs flow of cement from elevator into bin storage tank, or silo.



10 **Tunnel Gate**
a single radial clam gate for stockpile reclamation. Skirt board is hinged, opens and locks in any position.



11 **Chain Sprockets**
19-tooth chilled-rim cast iron with heavy split hub and double-rim lugs. Also, 12-tooth cast-chrome manganese.

Mail to: C. S. JOHNSON CO. CHAMPAIGN, ILL. (Koehring Subsidiary)

Send us details on items checked: 1 2 3 4 5 6 7 8 9 10 11

NAME _____
TITLE _____
COMPANY _____
DIVISION _____
STREET _____
CITY, STATE _____ ZIP _____

Enter 1461 on Reader Card

Evandale plant produces either dry batch or ready-mix

By HUBERT C. PERSONS

In Hilly Cincinnati—

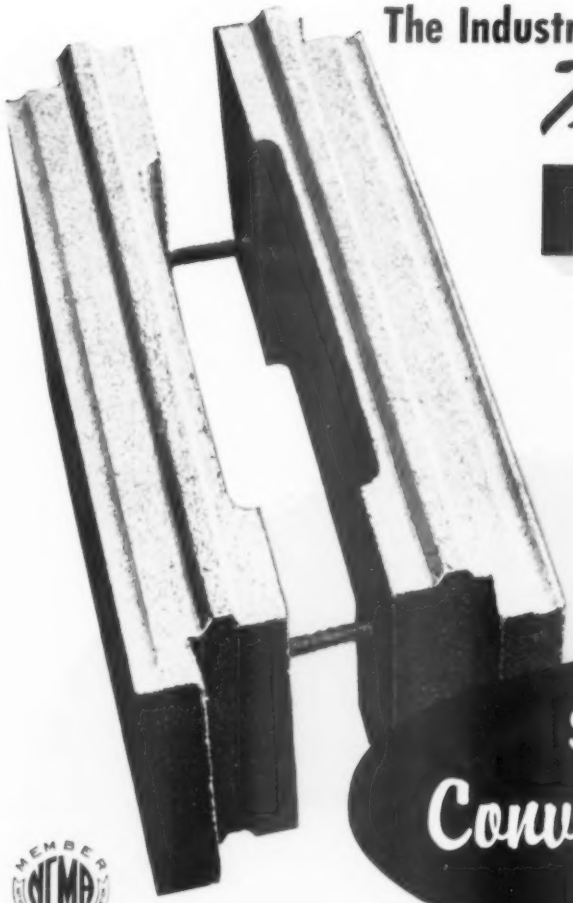
Plant Location Speeds Deliveries

Richter's 10 R.M.C. plants surround city, minimize long and costly hauls

THE TENTH READY-MIXED CONCRETE PLANT of Cincinnati's Richter Concrete Corp. began operations in May at Pleasant Run on the northwestern perimeter of the city.

The Richter organization started in 1933 with three plants and 17 trucks purchased from the Cincinnati Builders' Supply Co. The company now operates more than 100 ready-mix trucks. Its plants are strategically located to speed deliveries in the areas where building activity is expected to be greatest. Were it not for the hilly terrain of Cincinnati and suburbs, fewer plants doubtless would meet all demands. But, because of the many steep hills in Greater Cincinnati, long hauls are costly in time and truck operation.

Before adding new plants, Richter executives



The Industry's Most Advanced Building Unit

True "Air Cavity"

PRESTO BLOCK

SEE HOW IT'S MADE

SEE HOW IT'S LAID

See it at the NCMA Convention in St. Louis

Feb. 25 thru 28th, 1957

MEMBER NCMA

Construction Superiority

See how easy Presto Blocks lay up into a perfectly insulated self-aligning wall with features that mean stronger, more beautiful concrete block structures. See why Presto Block's twin wall construction means built-in moisture, sound and climatic insulation at its best.

Automatically Produced

See why the electronically-controlled, hydraulically-operated machines that produce Presto Block . . . at the same speeds and with the same aggregates as conventional block . . . are the finest, most advanced machines in the world today.

To the Concrete Industry —a sincere thanks!

Last September we announced the development of PRESTO BLOCK, industry's *first* and *only* automatically produced TRUE "AIR CAVITY" concrete building unit. After five short months, we are happy to report that our revolutionary product has gained *nationwide* recognition with architects, builders, contractors and homeowners! And now PRESTO BLOCK takes this opportunity to say thanks for your interest . . . and your acceptance!

GET THE COMPLETE PRESTO BLOCK STORY and information regarding franchise manufacturing arrangements today. Wire, write or phone:

PRESTO BRICK MACHINE CORPORATION

Empire State Building, New York • PEnnsylvania 6-1353-4-5-6-7

COMPLETE CAVITY-WALL INSULATION AT LOWER IN-THE-WALL COST

Enter 1495 on Reader Card

Left to right: Chas. Warner, August Richter, Julian Carson, and Julius J. Warner

made a survey among real estate operators and contractors. They wanted to spot locations where either large industrial or extensive residential developments were in the discussion or planning stage. This information, Richter officials say, led them to locate their plants so that quick deliveries can be made to almost any area in or around city.

The Pleasant Run plant has an attractive concrete office building and is equipped with the most modern bins and material handling, mixing and proportioning devices. Rated hourly capacity of the new plant is 100 cu. yd.

The new plant is centered around a 200 cu. yd. Octo-Bin, which has six aggregate compartments and two cement bins. All equipment is by the C. S. Johnson Co., including a 4-cu. yd. batcher. A bucket elevator 89 ft. long conveys aggregates to the bins. This is fed by a belt conveyor from undertrack hoppers. The cement bins are filled by a 79-ft. high bucket elevator. In addition to the 200-bbl. cement bins, there is also a 600-bbl. cement storage silo at ground level. Other equipment includes a 3-cu. yd. Model 84-S Koehring, non-tilt mixer. Steam for heating water and aggregates is provided by a 100 hp. Cleaver-Brooks oil-fired boiler.

The Bond Hill plant, originally a dry batch operation built in the middle thirties, was completely rebuilt at a cost of $150,000 in 1950. It is now one of the largest and most modern ready-mixed concrete plants in the Middle West with an hourly capacity of 150 cu. yd. Sand and gravel are delivered in railroad hopper cars and are unloaded into trackside storage bins of the Ohio Gravel Co., which supplies all the Richter company aggregates. From these bins, aggregates are carried by a 24-in. Columbus conveyor belt 150 ft. long, to the top of a 225-cu. yd. C. S. Johnson Octo-Bin. At the central portion of this bin are two 100-bbl. cement compartments. Around this are aggregate bins that are divided to hold two types of sand and three sizes of gravel, up to 1½-in. size. The plant is equipped to handle 14 cars of aggregates a day.

Cement is delivered by either bulk trucks or rail cars into hoppers at two different levels. A screw conveyor feeds the cement from either level to a C. S. Johnson bucket elevator. Rate of feed is 300

Your Plant Can Earn More

HIGHER PRODUCTION • BETTER PRODUCTS • LOWER COSTS

One Man Stripping operation of Thomas collapsible core septic tank form.

One Man Operation. Delivery and unloading septic tanks weighing up to 8,000 lbs.

Control levers on left side of truck bed, front and rear, give operator full visibility and control from any position.

Double Drum Winches rated 5 ton capacity are engineered for safe, positive operation in all stages of loading or unloading.

Your P & L will tell the difference after a few months operation with Thomas Equipment. From the pouring floor to the final delivery of the tanks there is no equipment which gives you such efficient operation or better quality products at definitely greater profits.

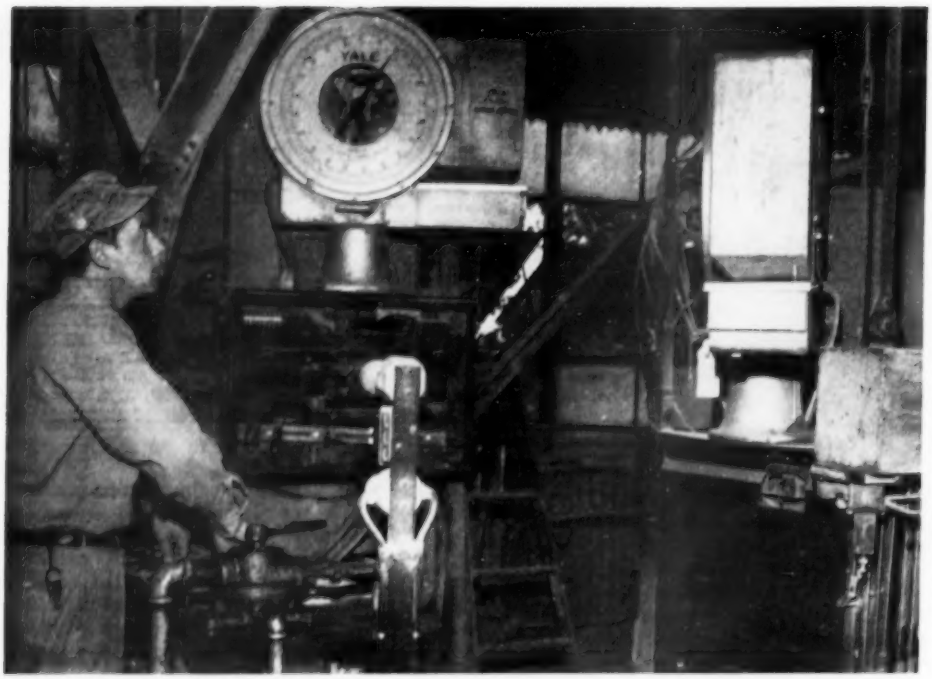
Thomas Self-aligning, Self-assembling steel forms have solved the problem of higher production with same man power you now have.

Thomas "One-Man" Handling Equipment is amazingly versatile, rugged and assures the vital reduction of time and labor delivery costs of tanks and vaults. ONE MAN ALONE loads, delivers and sets tank. No other equipment or man power needed. Think of the added production at no overhead increase.

GET COMPLETE DETAILS FOR YOUR NEEDS

Thomas steel forms 25257 W. Eight Mile Rd. • Detroit 19, Michigan

Enter 1496 on Reader Card



Inside batching tower at Bond Hill plant

bbl. per hr., which is also the capacity of the bucket elevator. The cement elevator is connected with four chutes through which the cement can be directed into the Octo-Bin or into cement silos, two of which are 1000-bbl. capacity each.

Cement and aggregates are weighed at the same time but on separate scales in the C. S. Johnson weigh batcher. Water is weighed in a 120-gal. tank, which empties into one of the two Model 56-S Koehring Tilt-Type mixers on a lower level. A 240-gal. water storage tank is kept filled at a constant level by a float valve. During cold weather operation, steam lines are run into the water storage tank. Desired temperature is maintained by a thermostat. Steam for heating the water, the aggregates and the batching tower is provided by an 80-hp. Cyclotherm gas-fired steam generator.

Another feature of the C. S. Johnson weigh batcher is automatic dispensing equipment for admixtures, when specified. Protex, made by Autolene Lubricants Co., is used as an air-entraining admixture to meet customer requirements.

The Evendale plant, located on the Glendale-Milford Road and the Pennsylvania Railroad north of the city, can produce either dry batch or premix concrete. This plant was built originally to supply concrete for the big Wright Aeronautic plant. All the machinery and equipment was moved to the present site in 1952.

The plant is served by a 3-track railroad siding. A 44-ft. long cross belt conveys aggregates from the under-track receiving hoppers to a 225-ft. long Barber-Greene 24-in. belt conveyor. The latter feeds into a 300-cu. yd. Octo-Bin. The long belt has a capacity of 300 t.p.h. The Octo-Bin has four 90-ton compartments for aggregates. There are also two 500-bbl. and one 300-bbl. cement storage silos.

The C. S. Johnson batcher weighs the cement and water automatically. Aggregates are proportioned manually. The mixer is a 3-cu. yd. stationary-type Koehring. A 100-hp. Cyclotherm, oil-fired boiler supplies steam for cold weather operation. Concrete can be delivered at 60 deg. F. or above to meet specifications. Plant capacity is 100 cu. yd. per hr.

The Newtown plant, situated on the eastern edge of the city, is also set up to produce either dry batch or premix concrete. Dry batch capacity is 100 cu. yd. per hr.; ready-mix capacity is 60 cu. yd. per hr. Blaw-Knox 4-compartment bins hold 150 tons of aggregates and 600 bbl. of cement.

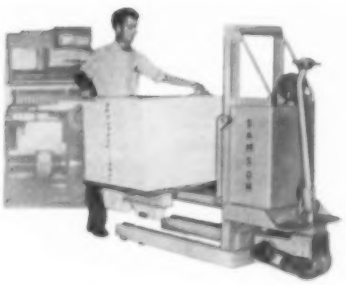
Please turn to page 217

NEW MACHINERY

Twin Vibrating Screed

STOW MANUFACTURING CO., 217 Shear St., Binghamton, N.Y., has introduced the "Twin Beam" vibrating screed for the precast field. The vibrating head transmits vibration evenly to the two beams so that as the screed is pushed along, the first beam strikes off the concrete and the second beam gives it a final finish. The unit is available with either a rubber-mounted 1-hp. electric motor or a 2½-hp. gasoline engine which drive a 2½-in. dia. vibrator head at about 5000 vibrations per minute. The steel shod beams are available in lengths up to 6 ft. In the illustration, Prestressed Concrete Products of Georgia is utilizing a 4-ft. Twin Beam screed for precast channel-shaped beams.

Enter 305 on Reader Card



Skid Lift Truck

GENERAL SALES AND ENGINEERING CO., Dept. CIC, 4525 N. Clark St., Chicago 40, Ill., has developed a new self-propelled hydraulic skid lift truck that allows the operator to pick up, transport, raise and lower skidded loads by means of a series of push button controls. The new unit in the Samson line of hydraulic hoists can hold a full load at any height with its motor off. A push-button control attached to a retractable reel permits the operator to raise or lower the load from any selected position. The control located in the steering handle actuates the forward and reverse movement. The motor is used only when the load is transported or raised.

Three models are available with capacities of 2000, 3000, and 4000 lb. Raised heights available for the three models are 36, 52 and 68 in., with a lowered height of 6½ in. The new lift truck can turn within its own radius. It is equipped with a 12-volt d.c. electrical system operating from standard heavy duty batteries carried in the cabinet. A battery charger is furnished.

Enter 306 on Reader Card

Mobile Laboratory

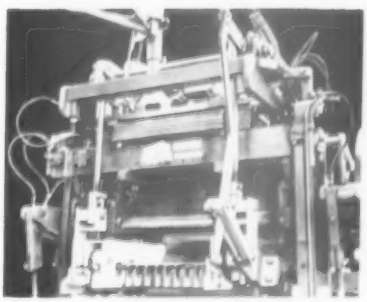
SOILTEST, INC., 4711 W. North Ave., Chicago 39, Ill., has completed a mobile testing laboratory for the Bureau of Public Roads which is fully equipped for standard soil and concrete tests. Mounted on a Four Wheel Drive Auto Co. truck (upper illustration), the 16- x 7-ft. van can accommodate four engineers and technicians. The self-sufficient unit carries its own utility equipment, and test equipment includes a portable 200,000-lb. capacity concrete testing machine for 6- x 12-in. cylinder tests. The tester is equipped with attachments for cement cube tests and for beam flexure tests. Soil testing apparatus ranges from permeameters to a field California Bearing Ratio set and unconfined compression testing machines. The unit is designed for on- and off-road use.

Enter 307 on Reader Card

Portable Cement Silo

TRAVEL BATCHER CORP., 6450 Holladay Blvd., Salt Lake City, Utah, is producing a new portable cement silo in two models; the regular, with 200-bbl. capacity, and the special model holding 350 bbl. Either 6- or 8-ft. square, depending on the model, and 27-ft. long, the silo is 12-ft. high when rigged for travel. It may be pulled by a truck with a fifth wheel or a ready-mixed concrete truck with a trailer eyelet. The weigh hopper has a 42-cu. ft. capacity, and dumping height of 12-ft. 6-in. The unit comes equipped with either a 20-hp. gas engine or 10-hp. electric motor. It can be erected at job-site with a crane or with its twin unit, the travel batcher.

Enter 308 on Reader Card



Feed Control

BESSER CO., Alpena, Mich., announces a new Besser automatic feed control mechanism which keeps block machine speed constant by compensating automatically for irregular feed or mixture control; adjusts amount of feed to the mold; and insures that every block is made to a specified predetermined amount of concrete. Advantages claimed are consistent production, quality controlled block, less material waste, and less supervision required.

Enter 309 on Reader Card

(Continued on page 208)

They're swapping minutes for dollars!

Worthington MIXERAMA proves on your job that a Hi-Up Mixer earns more for you!

You're looking at the unique new truck mixer demonstration that's got the Ready-Mix industry buzzing!

Hundreds of Ready-Mix men are finding out at MIXERAMA that no other truck mixer is in the same league with the Worthington Hi-Up. MIXERAMA is an eye-opening exhibition of Hi-Up performance — *and you see it at work right on your own job!*

Sure, we're proud of the Hi-Up Mixer. So proud, in fact, that we make a special point at MIXERAMA of letting you do just about anything to the Hi-Up that strikes your fancy. Try out the clutch . . . swing out (or on!) the sturdy discharge chute . . . climb *inside* the drum (of the Cutaway Mixer)— we want you to see for yourself just why we say the Hi-Up Mixer is your best buy . . . why no other mixer is in the same league when it comes to delivering *more uniformly mixed* concrete *faster!*

Tell your Worthington distributor you want to see MIXERAMA, with a Hi-Up loading at your plant and then delivering concrete to your current job. Or watch MIXERAMA in your area—your distributor will set up the date. It's the most convincing demonstration you've ever seen. And it's staged under operating conditions that *you* select . . . the tougher, the better! Call your Worthington distributor today and tell him you want to see MIXERAMA right away.

"MIXERAMA showed me how Hi-Up delivers better concrete faster!"

E. B. MC LENDON

Mr. E. B. McLendon purchased this 5½ yard Hi-Up Mixer after seeing it in operation at a MIXERAMA demonstration.

North Carolina Ready-Mix Operator Says, "After a MIXERAMA demonstration I signed up for a Hi-Up"

Mr. E. B. McLendon, of B. H. McLendon Concrete Company of Albemarle, is strictly from Missouri when he's shopping for a concrete mixer. He's got to see for himself. And Worthington's MIXERAMA demonstration enabled him to do just that. Here's his enthusiastic report:

"Worthington MIXERAMA is the most convincing on-the-job exhibition of a concrete mixer I've ever seen in this business. Why, they even let me climb right inside the drum, and find out for myself how it's built."

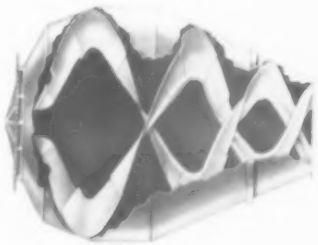
Features that sold Mr. McLendon

"What I especially liked about the Hi-Up is its heavy-duty transmission. It's the only one I've seen that's designed specifically for truck mixer operation. Our driver tells me the Hi-Up is unusually easy to handle and keep clean.

But the main reason I signed up on the spot is the way the Hi-Up mixes concrete so thoroughly and discharges it so fast—even a low-slump mix. After all, that's the pay-off—the ability to deliver *more uniformly mixed* concrete *faster*."

See MIXERAMA soon

Make a date today to see Worthington MIXERAMA as soon as possible. Call your Worthington distributor. Worthington Corporation, Concrete Machinery Division, Section R-6-1B, Plainfield, New Jersey.



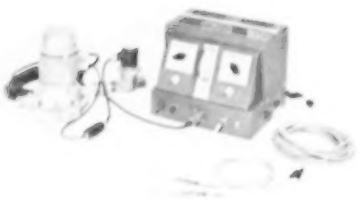
Beating this drum is impossible! Drum and blades are made of abrasion-resistant steel. Blade design gives thorough mixing, fast discharge. Advanced water system for precision mixing.

MIXERAMA'S on the way to you!

WORTHINGTON

If It's a Concrete Job, It's a DIAMOND *Job*

Rock Drills • Wagon Drills • Pavers • Concrete Mixers • Portable Pumps • Portable Compressors



Moisture Control Unit

Edlok Laboratories, Inc., 427 W. National Ave., Milwaukee 4, Wis., announces Model "M", an automatic electronic moisture control unit. All of its electronic readings are taken in the dry mix and water still required is calculated and added. It requires no restrictions of water lines, no extensions of mixing time and no special mixer plates. Other features are automatic pre-wetting of any desired quantity of water, and a push-button manual addition of water, should it be desired. There is also a visual water gauge on the unit.

Enter 310 on Reader Card

Lift Truck

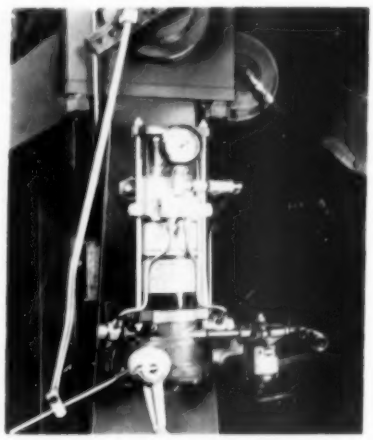
Hyster Co., Portland Ore., has announced the QN-20 Monomast Lift Truck, a pneumatic-tired model having 2000-lb. capacity at 24-in. load centers. Operating advantages claimed are single-upright visibility, faster load placement, reduced driver fatigue and greater safety. The lift truck is powered by a heavy-duty air-cooled Wisconsin gasoline engine. The complete line of Hyster hydraulic attachments can be mounted on the attachment carriage. Hyster LP-Gas conversion kits are also available.

Enter 311 on Reader Card

Pallet Racks

Palmer-Shile Co., 12660 Mansfield Ave., Detroit 27, Mich., has designed adjustable pallet racks for use in plants and warehouses. Adjustable members lock in place at the desired level without bolting or welding, and can be assembled in single, double or multiple sections to any desired height. Double slots set at an angle on the vertical uprights are said to give rigidity and freedom from sway. Braces are welded between the front and back uprights at the depth specified. Racks are built to specifications to store any kind of material, light, heavy or bulky.

Enter 312 on Reader Card



Lubrication System

Trabon Engineering Corp., 1814 E. 40th St., Cleveland 3, Ohio, is supplying an automatic lubrication system to the Besser Co., Alpena, Mich., for the Besser Vibrapac block machine. The mechanically-driven, automatic pumping unit operates by means of mechanical linkage with the machine being lubricated. Discharge is said to be controlled over a wide range by a varying stroke of overrunning clutch. Machines so equipped lubricate themselves while running, with no downtime for lubrication.

Enter 313 on Reader Card

Diamond Blade

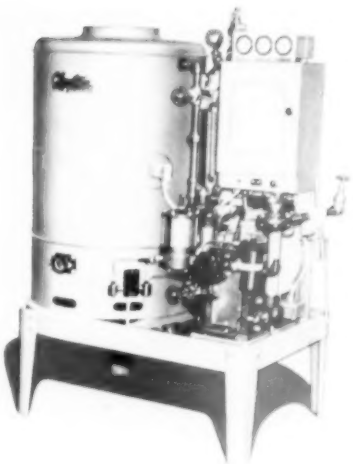
Champion Manufacturing Co., 2028 Washington Ave., St. Louis 3, Mo., has developed the C-35, a new tungsten carbide bonded diamond blade with higher diamond content for cutting cured concrete. After field testing, the company claims that the new blade offers improvement in speed and efficiency over previous blades in cutting hard, dense cured concrete.

Enter 314 on Reader Card

Portable Batching Plant

L. Burmeister Co., 4535 W. Mitchell St., Milwaukee, Wis., has developed the Porto-Plant, a portable concrete batching plant with 100 cu. yd. per hour capacity. Components include: a hinged, three-compartment, 125-130 ton capacity aggregate bin complete with batchers and scales in position for over-the-road hauling; portable belt conveyor on wheels; and portable Burmeister WeighMeister batching unit. One man operates the unit through a centrally located electrical panel. Other features include plug-in type electrical and air connections, air compressor and water pump and meter as standard equipment and permanent plumbing. Central-mix batching may be accomplished by using the Porto-Plant in conjunction with the Burmeister Tilting Mixer in 1- to 7-cu. yd. capacity.

Enter 315 on Reader Card



Steam Generator

Clayton Manufacturing Co., El Monte, Calif., announces that its forced-circulation generator with balanced-feed design is available in a 30-hp. normal rated boiler, 33-hp. maximum. This represents a doubling of capacity of previous models. Normal B.t.u. output is 1,004,250 per hp., and normal steam output is 1035 lb. per hr. The generators are designed with a pressure of 200 p.s.i.

Enter 316 on Reader Card

Your Front Office Must CLICK

By JAS. A. NICHOLSON*

48: A producer views the ready-mixed concrete business. This is the second article dealing with the important function of office personnel and records

A GOOD ACCOUNTANT belongs in every ready-mixed concrete organization. Under proper arrangements he will keep a producer well posted on processing, delivery, and other phases of the business. A good accountant can provide the basic boiled-down facts concerning the corporate property and business transactions that will enable a producer to operate efficiently and profitably.

An accountant's job is much more than the mere routine recording and checking of transactions and the assembling and reporting of cut and dried factual data. Financial statements and other reports should not be considered as an end unto themselves, but rather as easily interpreted guides for the different departments of management. A good accountant always keeps in mind the background and understanding—even limitations—of the management people who are going to be using the reports. In addition to reports being accurate and on time, it is important that they be prepared in a way that permits easy understanding.

By accurately boiling down into predetermined classes the mass of business events that take place in any given period (e.g., monthly, quarterly, or yearly) a good accountant can quickly obtain vital accurate figures that show the operations of a business and the effects of these operations for a given period of time.

All of us know there are two principal accounting summaries used in general accounting:—(1) the Balance Sheet, which shows the financial position of the business on a certain day. This statement shows the assets of the business, along with the rights of the creditors and owners in the assets; (2) the Profit and Loss Statement that sets forth the origin of net income or net loss for a definite period of time. This statement lists the operating income and costs for a given period, indicates a profit or loss for the period, and shows the effect of the profit or loss upon the producer's equity in the business. The Balance Sheet gives a picture of financial condition at a given moment; the Profit and Loss Statement shows the operating record between two Balance Sheets. Both statements may be accompanied by auxiliary statements to more completely describe specific phases or items appearing thereon.

In discussing these two most important accounting statements, I primarily want to point out the basic material that should be included in each statement and stress the fact that a producer can have invaluable control over his business if the reports are prepared and submitted soon enough after the close of the period.

The Balance Sheet lists the monetary values of all the assets and all the liabilities. The difference between the two listings represents the net worth or the deficit of the business on the day as of which the statement was prepared. The Balance Sheet also shows the proprietary interests in the net worth of the business. A Balance Sheet of any operating company should be based on the assumption that the concern will continue in business indefinitely; the net worth shown in any such statement should in no sense be considered an indication of the amount that might be realized were the company to be immediately liquidated.

The Balance Sheet is divided into a number of major classifications:

Assets

1. Current Assets
2. Permanent Investments
3. Sinking Funds
4. Fixed Assets
5. Deferred Charges (sometimes in Current Assets)

Liabilities and Net Worth

1. Current Liabilities
2. Fixed Liabilities
3. Deferred Credits
4. Net Worth or Proprietary Interest

There are good and bad Balance Sheets. Dependent on the purpose of the report, there might be some attempt at window dressing; under no excuse can there be justification for intentional misrepresentation. Regardless of how distressing a financial picture the Balance Sheet may show for owner or creditors, a good accountant holds fast to the principles and policies of good accounting techniques and procedures which he knows to be sound and proven and which he has been trained to utilize.

A number of business ratios have been effectively used by ready mixed producers in analyzing financial reports and in keeping costs under control. Business ratios that apply principally to the Balance Sheet include: (1) Current Assets to Current Liabilities; (2) Fixed Assets to Tangible Net Worth; (3) Current Debt to Tangible Net Worth; (4) Total Debt to Tangible Net Worth; and (5) Funded Debts to Net Working Capital.

In appraising the solvency of a business, the Current Ratio analysis appears to be most universally used. This figure is found by applying the formula:

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = \text{Current Ratio}$$

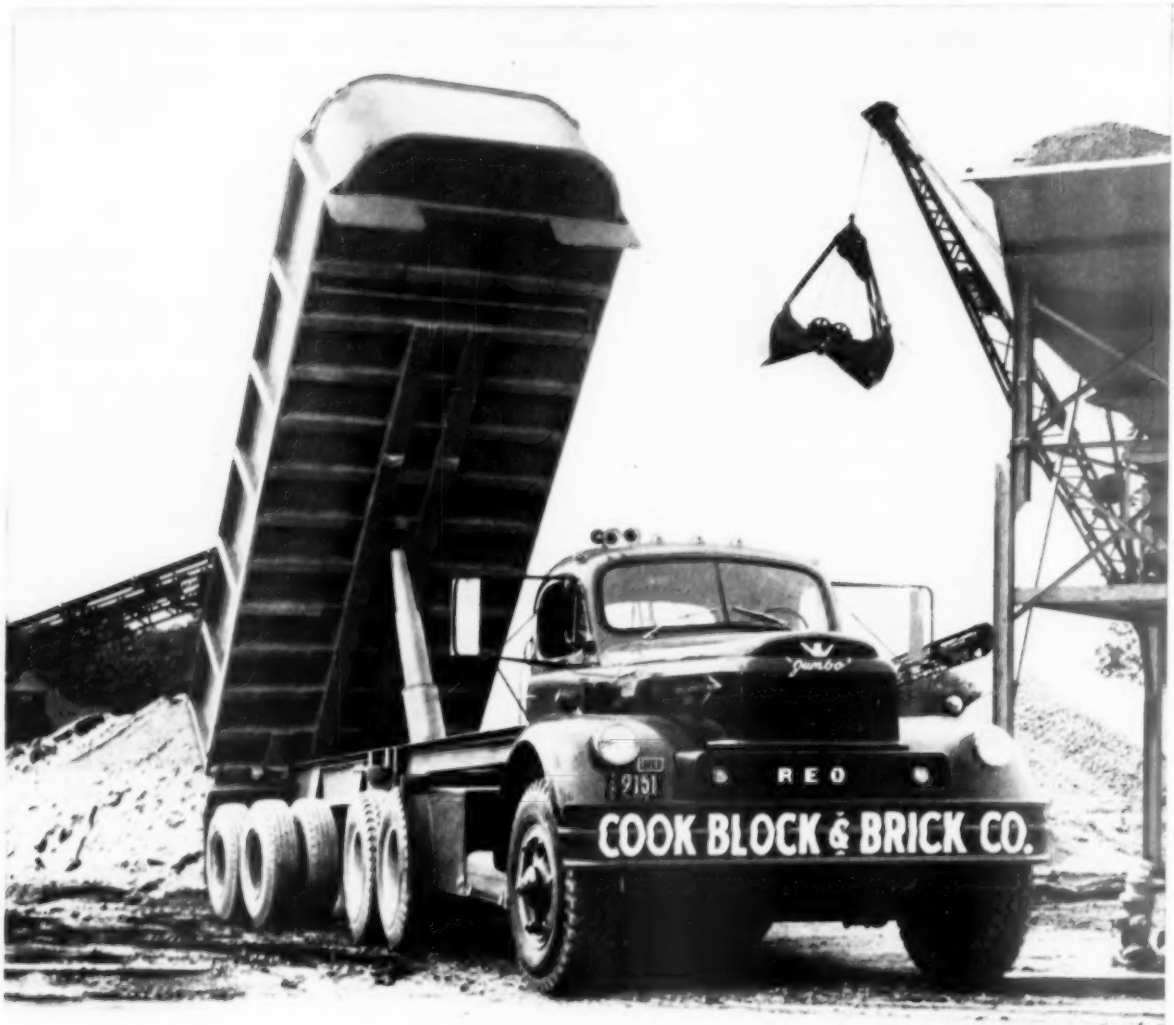
In the ready mixed industry, a current ratio of 2 to 1—that is, $2.00 of current assets to $1.00 of current liabilities—is usually considered satisfactory.

At regular intervals, a ready mixed producer should know the profit his company is making or the loss it is suffering. The periodic reports prepared for the producer should indicate the reasons for the results so that corrective measures may be planned

(Continued on page 212)

*Pres. Nicholson Concrete Co., Toledo, Ohio

LOOK AT REO FOR



LOOK AT REO IN THE CONSTRUCTION FIELD

Mr. V. E. Cook reports — "We are pulling 72,000 lbs. G.C.W. with Reo's A633-V-8. We were surprised when we weighed the new tractor and found it 2,000 lbs. lighter than other equipment in the 200 H.P. class. Naturally this permits 2,000 lbs. more payload."

EXTRA PAYLOAD

"2000 lbs. MORE PAYLOAD"

. . . says Virgil E. Cook, President, Cook Block and Brick Co., Anderson, Ind.

An extra ton per trip! Extra payload means extra profit . . . that's one of the big advantages you get when you haul with Reos. Reo engineering has eliminated excess weight—built in extra payload. Operators the nation over are experiencing the rewards of Reo's weight-saving design.

On their jobs everywhere Reos are setting spectacular records for power and efficiency. About his Reo wet sleeve, short stroke V-8, Mr. Cook says, *"Our operation is over winding, hilly roads which really test a truck when you are pulling a load this size . . . (72,000 lbs. G.C.W.)."* Reo's 207 and 235 h.p. Gold Comet V-8 engines develop a startling 1/2 h.p. per cu. in. displacement—up to 35% more efficient than the industry average. Pound for pound, Reo V-8's are the most powerful truck engines on the road.

Reos have the power to move bigger loads faster. They take grades in up to 1½ gears higher than other trucks on the highway and maneuver better in the city.

Reos haul more payload, haul it faster and haul it easier. You'll find it true on your job, too!

100,000 mile or 1 year warranty on all Reo Gold Comet Engines. This is the assurance you get from the manufacturer of the precision construction and outstanding performance that's built into Reo's rugged powerplants. Find out how you get this amazing warranty on the engine in the next truck you buy. Call your Reo Branch or Distributor today.

REO MOTORS, INC.

LANSING 20, MICHIGAN • TORONTO, ONTARIO

SUBSIDIARY OF BOHN ALUMINUM AND BRASS CORPORATION

REO

WORLD'S TOUGHEST TRUCK

TRUCKS, BUSES AND GOLD COMET ENGINES FOR ORIGINAL EQUIPMENT, INDUSTRIAL AND REPLACEMENT—GAS OR LPG

Enter 1433 on Reader Card

(Continued from page 209)

to increase the profit or eliminate the loss.

In our industry, a profit or a loss results from the combined effort of buying materials, processing them into ready mixed concrete, and distributing the product. Periodically, a ready mixed operator needs a report showing the income received from concrete sales and the costs of processing, delivering, and selling the concrete. The difference between the income and the costs represents a profit or loss.

The Profit and Loss Statement is simply a boiled down presentation of all the facts and details of the income and the expenses of the entire operation which have resulted during a given period of time. To fit the needs or wishes of an individual producer, this time or fiscal period may be varied from the usual one month to the very unusual one year. Some producers use one of the accepted intermediaries—bi-monthly, quarterly, or semi-annually.

The Profit and Loss statement shows a greater variety of items and less uniformity of grouping than Balance Sheets. For the purpose of breaking out and showing in order revenue, expenses, and the result—profit or loss—the statement follows a form similar to that listed below:

Net Sales	XXX
Less—Cost of Sales	XX
Gross Profit	XXX
Less—Sales & Administrative Expenses	XX
Operating Profit	XXX
Add—Non Operating Income	XXX
Gross Income	XXX
Less—Non Operating Expenses	XXX
Net Income Before Provision for Federal Income Taxes	XXX
Less—Provision for Federal Income Taxes	XX
Net Income After Provision for Federal Income Taxes	XXX

In appraising Profit and Loss Statements, producers and their accountants have again made effective use of a number of business ratios including (1) Net Profits on Net Sales; (2) Net Profits on Tangible Net Worth; (3) Net Profits on Net Working Capital; (4) Net Sales to Tangible Net Worth; and (5) Net Sales to Net Working Capital.

Although they have not put into operation a full fledged cost accounting program, a number of alert producers have also found that it pays to utilize these two principal accounting reports in developing a few "per cubic yard" figures.

These producers require that Profit and Loss Statements prepared for them indicate thereon the "per yard" income from sales and the "per yard" cost of the various expense categories:

Sales	Per Yard
Material Cost	Per Yard
Production Cost	Per Yard
Delivery Cost	Per Yard
General & Administrative Expense	Per Yard
Total Cost	Per Yard

A producer who regularly considers these "per yard" breakdowns each month begins to get cost minded. Such a producer generally finds out that considerable additional information on his business is available from a

(Continued on page 214)

What Are the Essentials of

An Efficient Front Office Operation?

1. Proper selection, training, and supervision of personnel.

2. Preparation of organizational chart with duties and responsibilities of personnel set forth and lined up.

3. Establishment of an effective accounting program that is geared to the needs of the individual producer.

4. Proper placing of responsibility and authority — clear understanding as to who is responsible for what and who does what.

5. Checking of each office activity to determine if it is being handled in the best possible way, whether it is necessary or can be done less frequently, and whether it can be combined with some other activity.

6. Providing for separation of duties involving financial transactions in order to attain greater efficiency, uncover mistakes, and prevent fraud.

7. Consistent interest in employees' personal problems; e.g., a problem at home can quickly become a company problem.

8. Development of methods to increase key employe interest—good working conditions, placing and acceptance of responsibilities, team spirit, and use of incentives.

9. Planning of schedules to gain more effective control over operations, use of proper scheduling techniques in the handling of inventories, available working capital, maintenance, vacations, cement allocations, etc. Each department might use a monthly calendar to help work out its scheduling problems; top management might use a composite operational calendar to more effectively administer and control operations.

10. Effective supervision of order-taking and dispatching routines.

11. Fast, accurate billing.

12. Sound credit sales policy.

13. Development and supervision of procedures and techniques for obtaining construction contracts—use of building reports, follow-ups of business leads, preparation of written proposals and purchase agreements.

14. Recognition of customer importance in front office. Personnel, including credit manager, should work for close personal relations with customers.

15. Improving operating efficiency through more effective controls, including use of cost accounting, business ratios, breakeven points, operating budgets, etc.

16. Continuous on-time audits of all accounts, transactions, and records.

17. An effective system of inventory control with special attention paid to all facets of cement purchasing and handling.

18. On time, accurate preparation of tax returns and other required reports.

19. Close controls established over production, delivery, maintenance, sales, and administrative costs.

20. Careful consideration of proposals that will speed up work, simplify record-keeping operations, reduce costs, and afford additional protection.

Another LEADER in the Block Industry!

Dick Francis says:

"If it hadn't been possible for me to lease the first Besser Vibrapac, I would never have been in the block business."

★This is the 136th of a series of ads featuring leaders in the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.

Today—This Progressive Cincinnati Plant Has a Daily Production of 45,000 Block

Reading Concrete Products, Inc., Reading, Ohio, started in the block business in 1947 with a single-block tamper having a daily capacity of 1800 units (8" or equivalent). Today, the company is Greater Cincinnati's largest producer of block with production stepped up to 45,000 units per day.

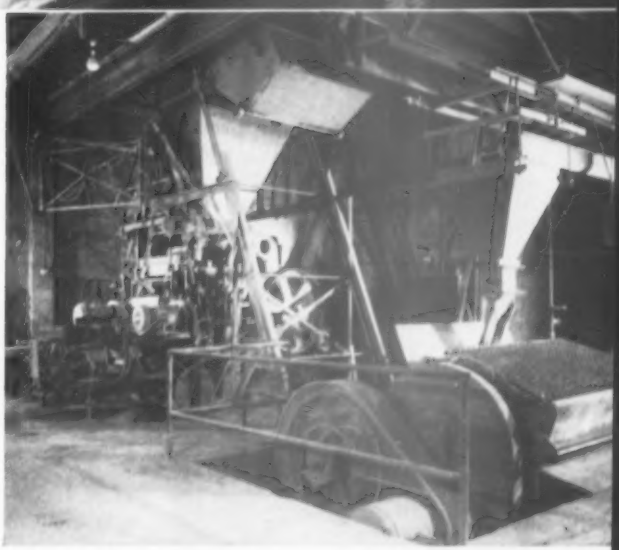
Besser Vibrapacs have been a big factor in the success of the company. The first machine was installed through the Vibrapac Agreement Plan. This proved so successful, five more machines were added from time to time... all through the Vibrapac Agreement... a plan that has enabled the company to keep up with the ever-increasing demand for concrete block. As Dick Francis, founder and spark plug of the company states: "The Vibrapac Agreement gives me working capital to expand and grow".

You, too, can make money with Besser Vibrapacs. Contact the Besser representative nearest you, or write directly to the factory for literature. There's no obligation.

BESSER Company

BOX 135 • ALPENA, MICHIGAN, U. S. A.

First in Concrete Block Machines



Five Besser Vibrapacs are now operating at the "Reading Rock" plants located at Newtown, Miamitown and Reading Road. A sixth Vibrapac is ready for installation in Reading Rock's new plant on Hamilton and Cincinnati Pike. These machines produce high quality units marketed with the trade slogan — "Reading Rock the Quality Block".

A 6-1

FRONT OFFICE

(Continued from page 212)

study of existing records and reports. If a producer's records for a given day, week, or other period show the number of cubic yards of concrete delivered and the total amount paid drivers, he can easily determine the driver cost per yard; if a combination log and time card is maintained daily by all drivers, a few minutes daily checking by a clerk will show individual driver cost per yard and some comparisons on driver performance.

From his monthly Profit and Loss statements, a producer might be able to get a number of "per yard" figures that tend to give him a better picture of what is happening. His payroll clerk might have the ingenuity to dig up some rather reliable figures on the cost per yard for plant men, drivers, and total payroll. By checking daily time cards and payroll figures, a clerk might come up with an average on cubic yards hauled per hour by each driver. A daily check on incoming material shipments and outgoing concrete deliveries leads certainly to better inventory control and probably to lower material costs per cubic yard.

Each new bit of timely information helps a producer to do a better job of running his business. I recently received a simple suggestion from an Eastern accountant on how a producer can daily get a little better picture of what's going on.

Louis J. Berman, a well known certified Public Accountant of Baltimore, Maryland, makes a practice of seeing to it that his clients, including aggregate and ready mixed producers, have a report* (Exhibit A) on the top man's desk each day giving cash on hand, accounts receivable, accounts payable, and notes payable. He says, "this flash report keeps the executive's finger on the pulse of the business."

*Exhibit "A"

To: Top Executive

Date: .....

	Cash	a/c Rec.	a/c Pay.	Notes Pay.	Other
Previous Day's Balance	XXXX	XXXX	XXXX	XXXX	XXXX
Additions	XXXX	XXXX	XXXX	XXXX	XXXX
Sub Total	XXXX	XXXX	XXXX	XXXX	XXXX
Subtractions	XXXX	XXXX	XXXX	XXXX	XXXX
Balance Today	XXXX	XXXX	XXXX	XXXX	XXXX

Vibration Intensity Compared

THE "VIBRATION COMPARASCOPE," a portable electronic device which can be brought into a courtroom to show the effect of blasting, television fashion, is announced by its designer, Harold H. White, consulting engineer, Joplin, Mo. It has been used on behalf of several operators beset with claims about alleged damaging vibration.

Vibration Comparascope makes vibration effects visible

The instrument provides evidence that the amount of motion transmitted by properly placed charges may be less severe than vibration caused by normal sources such as traffic and household machinery. Another comparison now possible is that between effects of above- and below-ground blasting. The televised vibratory motion may be recorded on film for future analysis. The comparascope is used to supplement the seismograph, not to substitute for it.

Mr. White is not offering the instrument for sale, but will arrange vibration surveys, using portable seismograph, air pressure meter and vibration comparascope.

Increases Quarterly Rate

KEYSTONE PORTLAND CEMENT CO., Philadelphia, Penn., increased its quarterly dividend rate on the common from 35¢ to 40¢ and declared a 40¢ extra dividend, both payable December 20, 1956, to shareholders of record December 6.

•

MARQUETTE CEMENT MANUFACTURING CO., Chicago, Ill., has leased space for a research laboratory in the building at 333 W. Lake St., Chicago.

National Gypsum Report

NATIONAL GYPSUM CO., Buffalo, N.Y., expected its sales for 1956 to show a slight increase, amounting to between $150 and $155 million, compared to $148,219,476 in 1955, according to Melvin H. Baker, chairman. However, expenses estimated at $3.5 million in starting up new plants are charged against current earnings, and this, together with a second-half volume lag and the fact that there are now nearly 433,000 more shares outstanding than a year ago, will drop per-share net to around $3.70 from $4.61 in 1955.

Mr. Baker foresees 1957 sales of about $160 million and net around $4 a share, if home building remains at the present level, and anticipated sales of new products and expanded facilities materialize. The company is continuing its expansion program as planned. Facilities now being built or developed are expected to be ready by 1959, by which time Mr. Baker anticipates an improved housing picture.

Discuss Cement Marketing

AMERICAN MARKETING ASSOCIATION had representatives of the Spanish cement industry as guests in an all-day meeting at the Congress Hotel, Chicago, Ill., November 29, 1956. Marketing trends in the cement industry, use of marketing research, importance of advertising and trade journals, and roles played by associations, architects and contractors were discussed by several speakers, including Joseph N. Bell, cement editor, and William M. Avery, associate editor, ROCK PRODUCTS.

Opens Recovery Plant

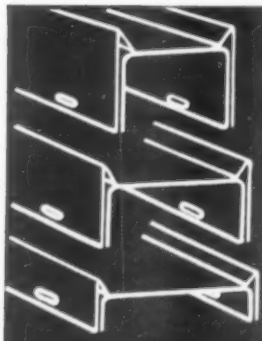
NORTH LITTLE ROCK SAND CO., Little Rock, Ark., has opened its recovery plant near Rose City, Ark. The 125-t.p.d. plant is utilizing modern dredging, washing and classifying equipment. Officers of the company are P. A. Dulin, president; W. F. Tracy, vice-president and general manager, and Margaret Panter, secretary-treasurer.

Whitehall Repeats Dividend

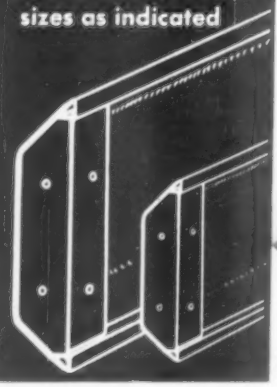
WHITEHALL CEMENT MANUFACTURING CO., Philadelphia, Penn., which declared a 4-percent stock dividend in 1955, paid a 5 percent dividend December 20, 1956, to stock of record December 10. It also voted a regular cash quarterly dividend of 40 cents on the common, payable December 31 to stock of record December 21.

Invest in only 4 sets of basic Form-Crete I-Beam steel forms...

PROFITABLY produce 30 different sizes of standard pre-stressed concrete I-Beams...

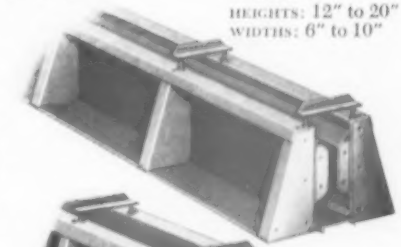


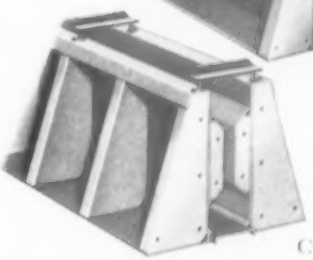
Interchangeable pilot liners and material displacement inserts are fabricated for each Class to produce all product sizes as indicated



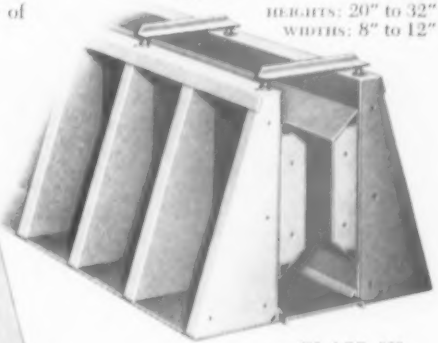
Side forms, inserts and pilot liners in all four classes are fabricated in 10-foot lengths for most efficient casting operations. Specially designed tie bar assemblies (adjustable to two or three casting positions for required widths) hold top of forms firmly in place for accurate casting. Bottoms of forms and pilot liners are locked in position by specially designed Panel lock bars and wedges to provide uniformly smooth pre-stressed I-beams that will meet the most rigid specifications. Prefabricated pre-stressed concrete construction is sweeping the country because of lowered construction costs when used. Architects everywhere are specifying it. Get into this lucrative market now – send for our descriptive, fully illustrated bulletin showing the complete line of Form-crete steel forms – write today!

CLASS I
HEIGHTS: 12" to 20"
WIDTHS: 6" to 10"





CLASS II
HEIGHTS: 20" to 32"
WIDTHS: 8" to 12"



CLASS III
HEIGHTS: 36" to 48"
WIDTHS: 14" to 18"

CLASS IV
HEIGHTS: 52" to 64"
WIDTHS: 20" to 24"

PF-6

Send for Form-Crete Bulletin 200
SEE FORMS AT THE ROAD SHOW
BOOTH 88, AVENUE G

FOOD MACHINERY
AND CHEMICAL CORPORATION
FLORIDA DIVISION
LAKELAND, FLORIDA

Form-Crete STEEL FORMS FOR CASTING REINFORCED OR PRESTRESSED CONCRETE

DOUBLE "T" SLABS

SINGLE "T" JOISTS

HOLLOW AND SOLID LINTELS

SQUARE AND OCTAGONAL PILING

BRIDGE BEAMS

PAN TYPE BRIDGE DECKS

Enter 1523 on Reader Card

GENUINE DUR-O-WAL® is a Sales Builder

6 REASONS why Dealers Stock Dur-O-wal

Dur-O-wal:

- is called for by name
- specified by Architects
- is an engineered product
- has fast turnover
- is easy to handle

• Architects specify Dur-O-wal. Builders demand Dur-O-wal. Dealer SALES on Dur-O-wal reach new highs with every season. CUSTOMER SATISFACTION couldn't be better! Yes, proved performance and economy in masonry walls the country over are the reasons why Dur-O-wal is a fast turn-over, big sales volume item for you. Stock Dur-O-wal now!

EASY TO STOCK, STORE TO USE AND TO SELL

Nationwide acceptance through proved performance means customer satisfaction for you

Trussed Design

Butt Weld • Deformed Rods

DUR-O-WAL®

See us at the

Concrete Industries Exposition

Kiel Auditorium—St. Louis

Feb. 25 through 28, 1957

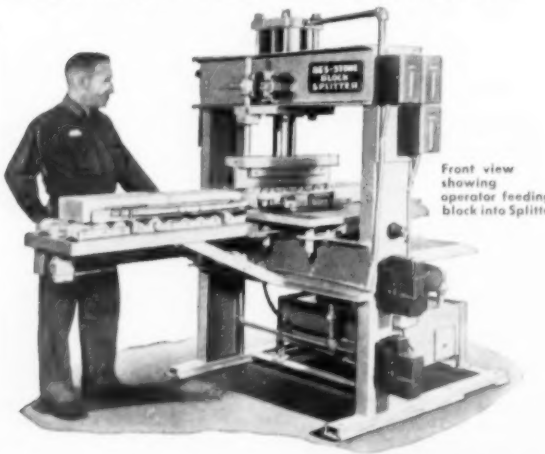
Dur-O-wal Div., Cedar Rapids Block Co., **CEDAR RAPIDS, IA.** Dur-O-wal Prod., Inc., Box 628, **SYRACUSE, N.Y.** Dur-O-wal of Ill., 119 N. River St., **AURORA, ILL.** Dur-O-wal Prod. of Ala., Inc., Box 5446, **BIRMINGHAM, ALA.** Dur-O-wal Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.** Dur-O-wal Div., Frontier Mfg Co., Box 49, **PHOENIX, ARIZ.** Dur-O-wal, Inc., 165 Utah St., **TOLEDO, OHIO**

Enter 1474 on Reader Card

"Cash in" on the Demand for SPLIT BLOCK

Install a BES-STONE Splitter

You can greatly increase block sales and add to profits by using a Bes-Stone Block Splitter. Architects and builders are sold on Bes-Stone Split Block because of its beautiful quarried stone appearance and wide range of adaptability. With its powerful, hydraulic operation, the Bes-Stone Splitter handles up to 900 units per hour. All straight line cuts. No cull block. Quickly adjustable for various heights. Finished Split Block is automatically removed from under the splitting knife by the incoming block. Quiet, safe operation.



Front view showing operator feeding block into Splitter.

. . . and this

PONY TRIMMER

Comes in Handy for

Trimming Block on the Job

Trims off the ends of split block up to 8" in width. Pressure is supplied by a hand-operated hydraulic pump having a capacity of 12 tons. Compact, lightweight, and easily portable from job to job.

Ask your Besser representative for literature, or write:

BESSER COMPANY

Complete Equipment for Concrete Block Plants

ALPENA, MICHIGAN, U.S.A.

Enter 1475 on Reader Card

RICHTER'S PLANT

(Continued from page 214)

These bins are fed by a 250-ft. long Barber-Greene belt conveyor. There are separate bins holding 400 bbl. of cement for dry batching operations. Ready-mix trucks are filled from a C. S. Johnson skip hoist with 5-cu. yd. hopper and clamshell gate.

The Eighth Street plant, in the western part of "downtown" Cincinnati, is necessarily compact because of high land values in the area. The plant has Blaw-Knox batching equipment, a 3-cu. yd. Ransome mixer, and cement storage capacity for 1600 bbl. A 200-ft. long reclaiming tunnel connects with aggregate storage bins under a railroad trestle. This has a belt conveyor leading to above-ground aggregate silos.

The Miamitown plant, west of the city, has a capacity of approximately 75 cu. yd. per hr. This plant has a 393-bbl. overhead cement silo fed by a C. S. Johnson bucket elevator. The plant also has a 25-cu. ft. Johnson weigh batcher. Water is measured by a 2-in. Neptune water meter. Additional equipment includes a 500-bbl. storage silo for cement.

Other ready-mix plants of the Richter Concrete Corp. are: the Bridgetown plant west of the city; the Hooven plant on the Big Miami river three miles south of Cleves; the St. Bernard plant, operated as an auxiliary to the Bond Hill plant and a plant at New Richmond, east of Cincinnati, which supplements the production of the Newtown plant.

Much of the maintenance work on trucks and equipment is done in the Richter Concrete Corp.'s own shops at 1249 West 7th St. Some truck maintenance is done at the Bond Hill and Evendale plants. All plants have facilities for sieve analysis and surface moisture tests of aggregates and for determining air content of concrete.

The Richter Concrete Corp. sells its product only through building material dealers. These dealers act as Richter sales agents.

Officers and key personnel of the corporation are: Louis Richter, president; Mrs. Eleanor Mecklenberg, vice-president; August Richter, secretary-treasurer; Julius J. Warner, general manager; Julian B. Carson, in charge of engineering department; Charles L. Warner, in charge of sales department; assisted by Walter H. Sievers; Ray E. Renshaw, head of order department. All orders are received and dispatched from a central location at 557 Reading Rd.

Expands Block Plant

Canada Concrete Products Inc., subsidiary of Miron Brothers, St. Michel, Canada, has expanded its facilities to include six block machines in a 260- x 290- x 30-ft. building. Four new Bergen Tri-Matic block machines and two older machines are used; all are equipped with Bergen automatic front pallet feeders, height and density controls, off-bearing hoists, batch mixers and skip hoists. Three of the machines make 8-in. block; one makes 6-in. and 12-in. block; another makes brick and patio block; and the sixth makes 4-in. and special block.

A central mixer for automatic weighing, batching and mixing of materials, and two side-by-side skip hoists serving two surge hoppers are included in plant equipment. The latter discharge to the 300-ft. distributing conveyor which is equipped with a Forano tripper. Surge hoppers fed by the tripper discharge into six mixers for final watering and mixing, one for each block machine. Sixty batches can be turned out in one hour, requiring 300,000 lb. of material.

Each block machine has two double-rack capacity automatic electric turntables to position the racks and to provide surge time for one of two lift trucks which transport the block.

Southeastern Concrete Masonry Association Meeting

MORE THAN 200 CONCRETE BLOCK PRODUCERS from 22 states attended the 13th annual regional meeting of the Southeastern Concrete Masonry Association at Miami Beach, Fla., November 14 to 16. They heard reassuring news concerning the continued high level of demand for their product, listened to some mildly disturbing reports of a downtrend in the profit picture, and received a generous injection of enthusiasm regarding the future of concrete masonry. There was also good news concerning the new Corps of Engineers guide specification on masonry.

Brief off-the-cuff statements by producers in the southeastern area revealed that in general, production of concrete block has been maintained at or near the very high levels set in recent years. Conspicuous exceptions were noted, however, in the Memphis area, where output was reported to have dropped 20 percent since June of this year, eastern North Carolina which also encountered a slump in midyear, and central South Carolina which has experienced a drop of about 35 percent.

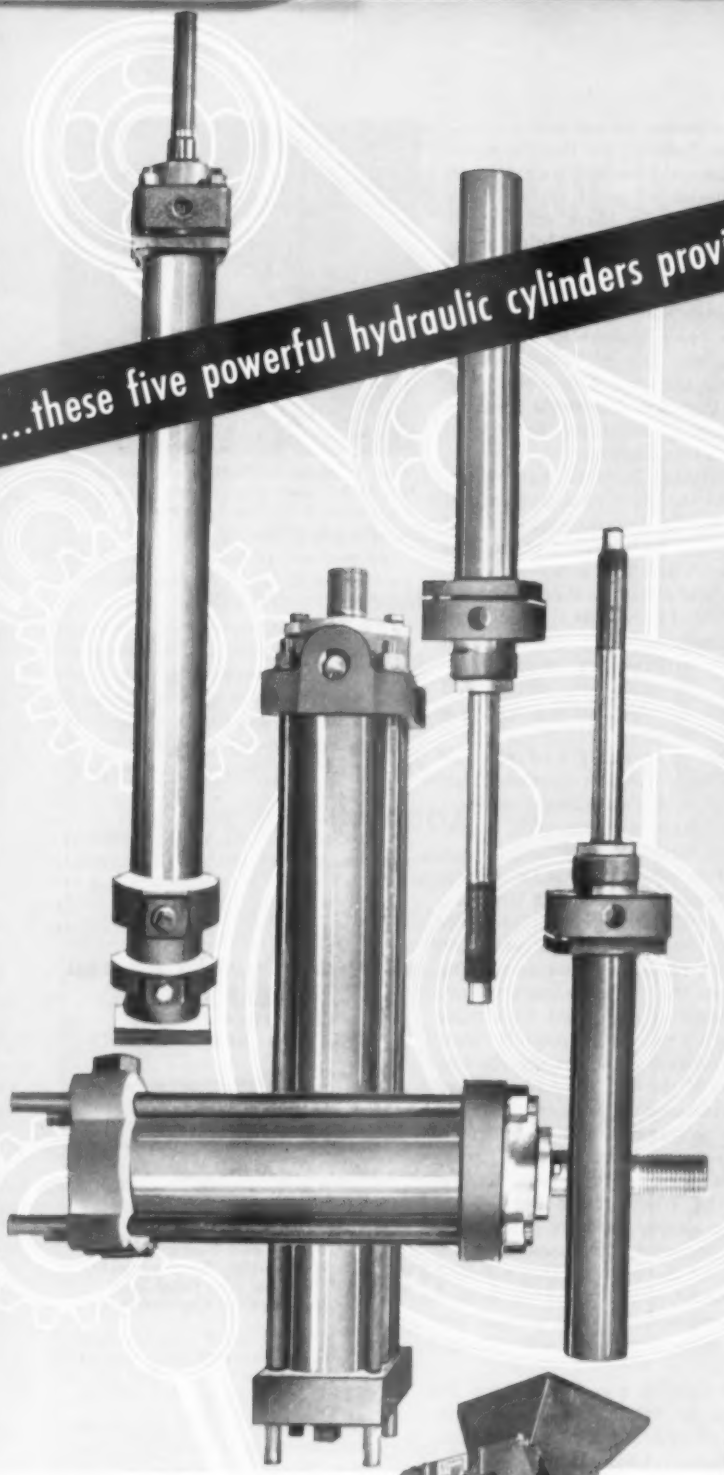
Ted Leba, Washington representative, N.C.M.A.; **George Katterjohn,** president, Southeastern Concrete Masonry Association, and **Ed Mangotich,** engineering department, National Concrete Masonry Association

Most producers reported that residential volume was down, but that continued high levels of activity in commercial and school construction had maintained total demand for their products at about the 1955 level. A number commented on a marked increase in competition, and indicated that this condition was resulting in some reduction in profit margins.

Probably the most inspiring message presented to the southeastern producers was delivered by Elizabeth Gordon, editor of *House Beautiful* magazine, who expressed the conviction that concrete masonry is the most exciting building material awaiting de-

(Continued on page 220)

...these five powerful hydraulic cylinders provide Columbia Block Machines with...



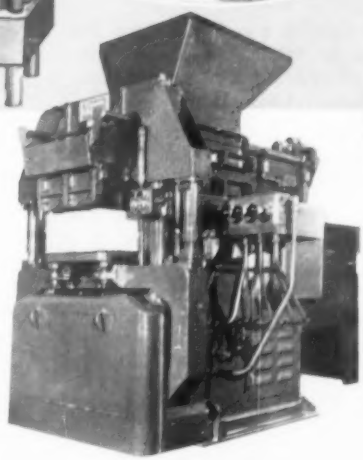
smooth positive trouble-free performance

YOU WON'T FIND the clank and clatter of cams, gears, levers and pulleys on Columbia machines because these five cylinders provide the power and action to do the job with precise, smooth, quiet operation.

Here's the power of hydraulics engineered to do the same job as equipment more than twice as large. Hydraulics make the difference in wearing parts, too, as this modern concept of engineering eliminates hundreds of moving, wearing, power wasting parts.

AND HYDRAULICS make possible Columbia's streamlined design, its outstanding production capacity in a much smaller machine . . . equipment so moderately sized that it can be easily adapted to most any existing plant layout. Columbia hydraulics are another reason why we say—

Columbia's Performance is Built-In!



Plant Layout & Engineering Service

If you are planning a new plant or remodeling existing installations, consult Columbia's engineering staff. No obligation of course. Write, wire or phone.

Columbia MACHINE

Home office:
107 S. GRAND, VANCOUVER, WASH.
Phone: OXford 4-1501

Factory Branch and Warehouse:
MATTOON, ILLINOIS

Parts Depot and Offices:
BURBANK, CALIFORNIA

District Offices in: Wisconsin, Illinois, South Carolina, Mississippi, Florida, New Jersey, Virginia, Texas, Massachusetts, Montreal, Quebec, Vancouver, B. C.

(Continued from page 218)

velopment. Pointing out that the product has already been firmly established as a material of great utility, Miss Gordon urged the block industry to start doing things that will bring about wide recognition of concrete masonry as a material of outstanding beauty.

In a good-humored way Miss Gordon took block makers to the woodshed for their lack of enthusiasm for their own material. She voiced the opinion that the industry's thinking has been sadly hampered by lack of vision and imagination.

Miss Gordon believes that we are coming to the close of a style period marked by "plainness, boredom and emptiness in both architecture and decoration," and that a period of enrichment and ornamentation is in prospect. It is her view that the block industry can capitalize on this imminent change by emphasizing at every opportunity the color and texture and all-around versatility of exposed concrete masonry.

Always a forceful and effective speaker, Miss Gordon cautioned her Miami Beach audience not to embrace the theory that it is inevitably necessary to undersell competition. In support of this view she cited the experience of one of the country's large and successful advertising agencies. Over the past five years this organization has found repeatedly that advertising campaigns that stress economy have little appeal as compared with those that play up the "better product" idea.

Miss Gordon made the specific suggestion that the block industry regard its present standard product as a bread and butter material, and go on to develop new products for the luxury markets which are now opening. "Think of your present block," she said, "as simply the core of your industry, and start doing something tangible about the breath-taking possibilities inherent in such developments as three-dimensional block, ground and glazed units, and units with integral color."

Miss Gordon was followed on the program by William P. Markert, director of promotion, National Concrete Masonry Association. Mr. Markert predicted that in the months ahead the pressure of competition will be greater than ever before, and that it will become necessary for the block industry to sell its product more vigorously than ever before.

"What we must sell," Mr. Markert said, "is an entirely new concept of how to use our familiar material, and at the same time we must begin forgetting how things were done yesterday."

Wm. Markert, director of promotion for N.C.M.A., who discussed a number of the problems involved in merchandising

As evidence of how this attitude has paid off in at least one large corporation, Mr. Markert pointed out that 60 percent of the present-day sales of the General Electric Co. involve products and improvements that didn't even exist 13 years ago. In closing he suggested that some such capacity for growth and development may well be the price of survival in the years ahead.

Another N.C.M.A. headquarters staff member, Edward Mangotich,

(Continued on page 222)

(Continued from page 220)

spoke on the relationship of the block producer to the architect. The central theme of his message was that the producer must both gain and maintain the architect's acceptance of block because it is most often the architect who decided whether or not and how masonry units will be used.

Mr. Mangotich believes that, more than anything else, the architect wants sound information which will enable him to make the best possible use of the product, and he expressed the view that up to the present time the block producer has failed to meet this need. He bases this conclusion on the number of requests N.C.M.A. receives from architects for information regarding the shapes, sizes, types and physical characteristics of block available in a particular area.

Earl W. Peterson, president N.C.M.A., and **Paul Lenchuk,** secretary, Florida Concrete & Products Association

He charged block makers specifically with failure to sell the modular advantages and accoustical properties of their product, as well as with the equally serious failure to alert users to such important considerations as the need for contraction joints. Through N.C.M.A., as well as from a number of other equally reliable sources, Mr. Mangotich said in conclusion, a wealth of excellent technical information on concrete block is available, but it is essential that the message reach the user.

The broad problem discussed by Mr. Mangotich was also dealt with from the point of view of the architect by H. Samuel Kruse, an associate of a Miami architectural firm and director of public relations of the South Florida chapter of the American Institute of Architects. Noting that architects all fall into one of three categories (traditional, natural and high style), Mr. Kruse advanced the idea that each must be approached by the seller with some awareness of his philosophy of design. With the traditional architect, for example, it is best to play up the practical aspects of the product being sold, and to show him only the most conservative designs and colors.

The natural architect is concerned with establishing a sound practice, but he will try new things if he is convinced they will deliver the result he seeks. The high-style architect, unlike the others, thrives on sensationalism, and he will try anything once.

Mr. Kruse believes that the architect is an easy lad to win over if your product is right and you follow the right rules in approaching him. In most cases, he asserted, the right approach is simply the one which develops the means to enable the architect to reach a favorable decision. "In short, make it easy for him to specify your material and you, too, can win a big, fat architect."

In his report on Washington activities of N.C.M.A., Washington representative Ted Leba dealt with three main topics: advance information on the 1954 Census of Manufactures; revisions to the Corps of Engineers' guide specification; and the current Federal Works Program. The following are some of Mr. Leba's comments on the 1954 Census of the block industry:

In 1954 almost two billion 8-in. equivalent units were produced by the block industry. The value of the industry's output was very close to the $400 million mark, compared with only $178 million in 1947, when the last census study was made. Lightweight units overshadowed heavyweight in the ratio of about 1½ to 1 in 1954.

Mr. Leba stated that the new Corps of Engineers guide specification on masonry contains some radical and highly significant revisions, and that N.C.M.A. had concurred in about 95 percent of the context. The new guide specification, according to Mr. Leba, does these things:

Opens the door to the use of split block and concrete brick in military-type structures.

Changes the test for linear shrinkage from the so-called Rapid Method to the Modified British Method, changing the values for the maximum potential shrinkages and making them a function of the density of the concrete.

Shifts the arbitrary weight distinction between lightweight and heavyweight units from 100 lb. per cu. ft. to 120.

Provides that in lieu of an Underwriter's Certification, producers may have a recognized testing laboratory certify that their units are equivalent in fire rating to those furnished by

(Continued on page 224)

Whiteman CHAMPION

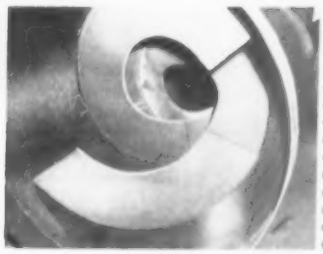
RUGGED SIMPLICITY means LESS MAINTENANCE

. . . a Better Mix in Less Time!

Simplicity of design and rugged construction are the principal reasons why Whiteman Champions are the most economical of all truck mixers to operate.

Featuring the largest diameter drum in the industry, they produce a better mix in less time. All unnecessary weight has been eliminated to permit a bigger pay load. Fast charging and discharging, easier operation. Far less maintenance cost.

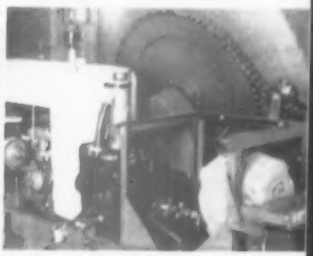
Yet, the Whiteman Champion is priced below any other mixer of comparable quality. Ten models, from 3 to 6½ yards. Front and side mounted engines. There's a model perfectly adapted to your particular needs. Call your Whiteman distributor or write now for complete information.



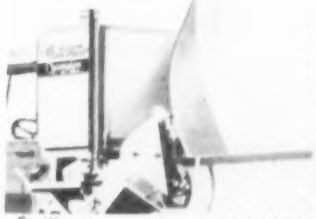
Extra large drum is heavy abrasive-resistant steel. Specially designed fins give better, uniform mix.

Oversize track rollers run smoothly on Timken double-row, double-sealed roller bearings.

Dual controls, front and rear, give driver complete control of drum for mixing, discharge and speed.



Patented main shaft bearing application assures longer, trouble-free life.



Positive pressure is assured by high-volume engine-driven pump. No pressure tank where leaks cut supply.

Long, folding, hydraulic-controlled discharge chute with extension is standard. Dynachute optional.

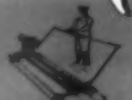
Whiteman

THE LEADER IN CONCRETE EQUIPMENT

TRUCK MIXERS

POWER BUGGIES

VIBRATORS



SCREEDING MACHINES

FLOATING-FINISHING MACHINES

WHITEMAN MANUFACTURING CO. DEPT. CP
13020 Pierce St., Pacoima, Calif.

Please send prices, catalogs and name of distributor for
☐ Power Buggies ☐ Screeding Machines ☐ Vibrators
☐ Floating-Finishing Machines ☐ Truck Mixers

Name

Firm

Address

City Zone State

(Continued from page 222)

producers listed in the Fire Protection Equipment List.

Discards the 30 percent moisture limitation and replaces it with the requirement that block must be in an air-dry condition as determined by the relative humidity test method developed by Carl Menzel of the Portland Cement Association.

Provides quite specific instructions to contracting officers on making provision for the control of cracks in masonry structures.

In his brief discussion of the Federal Works Program, Mr. Leba pointed out that projects proposed for construction by the General Service Administration alone completely dwarf the structures rated as the seven wonders of the ancient world. Under the new lease-purchase plan of financing federal buildings, local architects will have discretion regarding design and materials. This, according to Mr. Leba, makes it more important than ever that local block producers promote their product with local architects in order to be sure that specifications will include block.

Earl W. Peterson, president of N.C.M.A., told the producers at Miami Beach that manufacturers of competitive materials are trying desperately to recapture the market that slipped away from them during the post-war years. He stated that the block industry can hope to maintain its position of leadership only at the expense of some sacrifice of time and money.

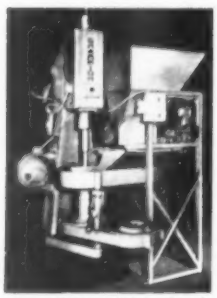
Mr. Peterson suggested to the group that the most effective and economical way of supporting the industry and assuring its future market was through membership in the national association. He credits N.C.M.A. with much of the responsibility for developing markets for block that didn't even exist a few years ago.

For 50 Years

Dunn Machines Have Paced the Drain Tile Industry

They have pioneered in the production of high quality tile—strong, dense, and truly round. They have influenced the greater use of concrete tile by lowered prices and easier availability. They have encouraged its manufacturing as a community enterprise.

Efficient, compact, low-investment Champion plants, using local aggregates and local labor, pare production costs to the minimum. Effect tremendous economies in freight, distribution and breakage. Net results: lower costs to consumers, leading to increased sales volumes, and a generous margin of income for the manufacturer.

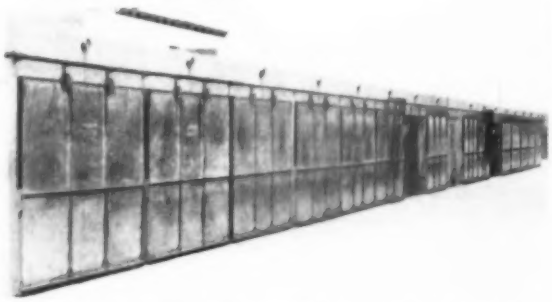


Investigate — today — the most profitable angle of the concrete products industry. Write for a copy of the Champion catalog.

W. E. DUNN MFG. CO.

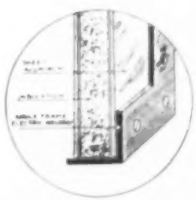
528 W. 24th Street, Holland, Mich.
978 Dundas Highway Cooksville, Ont.

Enter 1469 on Reader Card



Moore Carrier-Type Doors at Clyde J. Keys Industries, St. Petersburg, Fla.

Moore Metal-Insulated Kiln Doors Save Fuel—Reduce Curing Time



Keep heat where it belongs—inside the kiln—with Moore Aluminum-Insulated Doors. They improve curing conditions — save steam—last longer.

Send us dimensions of present door openings for quotation.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Lumber and Veneer Dryers

JACKSONVILLE FLORIDA · BRAMPTON ONT. CANADA · VANCOUVER, B.C. CANADA · NORTH PORTLAND OREGON

Enter 1470 on Reader Card

Production Schedules SLOWING DOWN?

Speed winter production of concrete products with SOLVAY CALCIUM CHLORIDE

This winter you can **double** output of poured products . . . cut steam curing of pressed and tamped products in **half** . . . handle **twice** your usual volume in your present storage space. How? By adding Solvay Calcium Chloride to your mix. It doubles the early strength—speeds strength development without changing normal chemical action of Portland Cement.

Clip coupon for helpful, informative booklet "How To Get Better Concrete Products at Lower Cost"

SOLVAY ®

Allied Chemical

SOLVAY PROCESS DIVISION
ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

Please send me, without cost,
"How To Get Better Concrete Products at Lower Cost"

Name
Position
Company
Address
City Zone State

CP-1

Enter 1471 on Reader Card

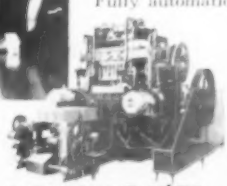
CONCRETE PRODUCTS MFG. CO.
(l to r) A. K. Atkinson, Jr., Gen. Mgr.; W. Hooker, Plant Supt.; A. D. Brown, Asst. Plant Supt.; W. E. Villhard, Yard Supt. and C. S. Philbrook, Machine Supt. (insert) R. J. McManemin, President. This company started in the block business 23 years ago. Today they operate 4 Vibrapac machines, producing 4,500,000 units (8" or equivalent) annually.

St. Louis is a BESSER city!

90% of all Concrete Block used in the St. Louis area are produced on BESSER VIBRAPACS!

MAJESTIC BLOCK CO.
Mike Mohan, flanked by his 3 sons, John, Robert and Al. All four have been enthusiastic Vibrapac users for many years. At present they are operating 3 Vibrapacs.

BESSER VIBRAPAC
The choice of leadi blockmakers, every where. Produces up to 10,000 units (8" or equivalent) dail Fully automatic.



VOLZ CONCRETE MATERIALS CO.
One of the oldest producers of concrete block in the St. Louis area. Their first Vibrapac was installed in 1940. Today they operate 4 Vibrapacs. (l to r) Wm. G. Gittins, V.P. & Gen. Mgr.; Ed. R. Gittins, Pres.; and Sam J. Gittins, Sec.-Treas.

BESSER company
Box 135 • *Alpena, Michigan, U.S.A.*
1st in Concrete Block Machines

See the Vibrapac in Operation • NCMA Convention, St. Louis • Feb. 25-2

N.A.L.I. Convention Program

THE TWELFTH ANNUAL CONVENTION of the National Agricultural Limestone Institute, Inc., will be held at the Statler Hotel, Washington, D.C., January 19-23, 1957. The program follows:

Saturday, January 19

The executive committee will meet at 9 a.m., and individual committees will meet at 2 p.m.

Sunday, January 20

The board of directors will hold morning and afternoon sessions.

Tuesday, January 22

Leonard S. Fry, president, National Agricultural Limestone Institute, Inc., president, Fry Coal & Stone Co., Mercersburg, Penn., will preside at the morning session.

Moving Picture

Welcome by president — Leonard S. Fry

Treasurer's Report—J. B. Mount

Committee Reports by chairmen

Discussion of problems throughout the nation on the basis of Regional Committee's reports

Greeting Luncheon

Robert M. Patton, president, New York Coal Co., Columbus, Ohio, will preside.

"The Future of Our Industry"—Robert M. Koch, executive secretary, N.A.L.I.

At the afternoon session, Director T. B. Stafford, general superintendent of quarries, Vermont Marble Co., Proctor, Vt., will preside at the panel on operations.

"Use of 4½-in. drill air track (self-propelled) mounting, and sectional steel for quarry blast holes"—Charles Rich, president, Swanton Lime Works, Inc., Swanton, Vt.

"Plant Dust Control — safety within plant, lower maintenance on machinery and elimination of neighborhood damage suits"—William J. Clark, general superintendent, Munnsville Limestone Corp., Munnsville, N.Y.

"Quarry haulage — from shovel to crusher—small equipment vs. large"—W. L. Bryan, president, Bryan Rock Products, Inc., Shakopee, Minn.

"Getting the most from your plants and equipment by means of preventive maintenance"—Arthur R. Alvis, president, Alvis Limestone & Concrete Co., Butler, Mo.

"New Blasting Code" — John M. Deely, Sr., president, Lee Lime Corp., Lee, Mass.

The evening will be devoted to Manufacturers' Division's guest night Buffet Dinner—Dance

Wednesday, January 23

Moving Picture

At the morning session, Robert M. Koch will preside at a panel on conservation. Officials of the United States Department of Agriculture administering various conservation programs will tell about their activities. Assistant Secretary Ervin L. Peterson, in charge of all the U.S.D.A.'s conservation programs, will present general policies. Agency heads discussing their programs individually include:

C. M. Ferguson, administrator, Federal Extension Service

Paul M. Koger, administrator, Agricultural Conservation Program Service

H. J. Doggett, director, Soil Bank Division

D. A. Williams, administrator, Soil Conservation Service

H. L. Manwaring, deputy administrator, Production Adjustment, Commodity Stabilization Service

At the luncheon, Vice-President Russell W. Hunt, president, Southwest Lime Co., Neosho, Mo., will preside. "The Safety Valve of Sanity"—Ernest Robert Rosse

The afternoon session features a panel on promotion, with Directors R. B. McNab, American Limestone Co., Knoxville, Tenn., and Lynn N. Stewart, Columbus, Ind., presiding as co-chairmen. Panel participants include:

W. Dean Fyock, Fry Coal & Stone Co., Mercersburg, Penn.

Lowell E. Glendening, Mulzer Brothers, Tell City, Ind.

Robert N. Stewart, Columbus, Ind.

William E. Stone, Piqua Quarries, Armco Steel Corp., Piqua, Ohio

"Status Quo or No"—B. T. Abbott, Southern States Soil Service, Memphis, Tenn.

Manufacturers' Division

Director Jules E. Jenkins, Vibration Measurement Engineers, Chicago, Ill., will preside. Representatives of companies not now members are invited.

Reception and Banquet

Leonard S. Fry, president, Fry Coal & Stone Co., Mercersburg, Penn., will preside.

"Saving Nature—Saves Humanity"—Karl E. Mundt, U.S. Senator, South Dakota

WHERE TO BUY

800 18 x 18 x 1¼ Steel pallets—Worn to about ⅞" but suitable for semi-automatic machine .75 each.

1 28' Stearns Skip Hoist with motor $750.

1 30' Praschak Mixer with 10 HP Motor, blades and liners in good condition $1000.

1 Model D Truckman, with power pump, same as new $750.

1 40 HP Cyclotherme Boiler, 3 yrs. old $1500.

1 Champion Drain Tile Machine, 4" & 6" attachments automatic feeder, used 3 months $2250.

1 P5 Erickson Platform Truck, International motor reconditioned $1500.

1 LT60 Towmotor Fork Truck with pipe forks, dual wheels reconditioned $3000.

1 Columbia Model 8 Automatic machine, two block 8" mold, two pallet offbear, can be seen operation daily $7500.

1 Columbia Model 8 Automatic, new type pallet feeder, factory reconditioned last year, operating daily. $6500.

•

W. H. LACKEY, INC.

Box 25, Phones CI-68926 or CI-62544

KINGSPORT, TENN.

DID YOU BENEFIT FROM SOMETHING YOU READ IN "ROCK PRODUCTS"

Elsewhere in this issue is a special card to make it easy to subscribe for a friend or employee.

Why not pass along the card to people you think should be reading ROCK PRODUCTS every month.

TESTERS

For

BLOCKS
CYLINDERS
CUBES
BEAMS
LINTELS
PIPE AND SLABS

If it's a concrete tester you need—get in touch with

FORNEY'S, Inc.

TESTER DIVISION

P. O. BOX 310 · NEW CASTLE, PA.

WORLDS BEST
Stripping Splash Block Molds 2½"x11½"x36"

F. H. A. Approved Mold Made out of deep drawn 16 gauge steel $16.00 each in lots of 10 or more $12.95 F.O.B.

Send for Free Bulletin on many other High Profit Low Cost Molds.

PARK MOLD & STEP CO.

1020 N. Raymond Rd. Battle Creek, Mich.

FOR SALE
BERGEN TRI-MATIC BLOCK MACHINE

Front Pallet Feeder, Zeromatic Control, and Offbearing Hoist, used less than 11 months.

Address Box 0-82,

CONCRETE PRODUCTS

79 W. Monroe St., Chicago 3, Ill.

SMITHKO CEMENT COLORS

- **The Standard of Comparison for Nearly Forty Years**
- **65 Shades to Choose From Including Many New Colors**

Send For Latest **COLOR CARD**, Samples, Technical Brochure, and Quotations.

SMITH CHEMICAL & COLOR CO.

53-57 John St., Brooklyn 1, N.Y.

CONCRETE BRICK COLORS
CEMENT COLORS
MORTAR COLORS

made by

BLUE RIDGE TALC CO., INC.
Henry, Virginia

VIBRO-TABLES & METAL MOLDS

SPLASH-BLOCKS **LAWN TRIM**
WINDOW-WELLS **DIST. BOXES**
STEPPING STONES **WALL CAP**
CHIMNEY CAPS **STEP TREADS**

HIGHWAY DIVIDERS

"BAR-X" BARBECUE & INCINERATORS

SPECIAL MOLDS MADE TO ORDER.

WRITE TODAY

SPILLMAN MFG. CO.
Box 534 Station "G"
Columbus, Ohio

GOOD WILL BUILDERS

Your contractor and bricklayer customers will be able to do quicker, easier, straighter work with UB Tools . . . tools that carry YOUR OWN COMPANY ADVERTISING. Linestretchers, Corner Ties, Line Pins, Twigs, Concrete Calculators. We also wholesale a complete line of Blocklayers' Tools. Write for literature and prices.

UNITED BUILDERS
1822 Lindberg Dr., Muskegon, Mich.

Pallets
Racks
Lift Trucks
Block
Machinery

WITTEMANN MACHINERY COMPANY
FARMINGDALE, NEW JERSEY
Specialists in Concrete Products Equipment
Eastern Representatives of the
COLUMBIA MACHINE WORKS, Vancouver, Washington

Elevators
Bins
Conveyors
Feeders
Mixers

FOR SALE

NEW LOW PRICE

NEW YELLEN Hi-SPEED PLAIN PALLET BLOCK MACHINE

THE NEWEST LOW COST PLAIN PALLET MACHINE

THOROUGHLY TESTED PROVEN

JOHN J. YELLEN
PERTH AMBOY, N. J.

SWAP — SELL — BUY

BLOCK MACHINES

Stearns #7 & 9 Jolteretes (Jolterete owners at this price buy one for spare parts.)	$500.00 each
Mold Boxes #7 & 9	150.00 each
1—12 cu. ft. Kent Mixer with motor	450.00
1—Y 10 Truckman Fork Lift 3000 lb. capacity	3500.00
1—George 28 cu. ft. Concrete Mixer	750.00
1—Continuous Mixer	150.00
2—Air Offbearers Stearns #7 & 9	250.00 each
2—Hand Lift Trucks	175.00 each
100—Racks for cored steel pallets	10.00 each

100,000 pressed steel pallets in stock
(Send tracing or sample for quotation)

WRITE • WIRE • PHONE
Mr. McCaughey

Send In list of equipment you need. If we don't have it in stock, we usually know where we can find it at a bargain.

GENERAL ENGINES CO., INC.
Route 130 Thorofare, N. J.
Phone: Tilden 5-5400

OFFICES — DISPLAY ROOM WAREHOUSE

Metropolitan area of Washington, Arlington, Va.

4 Intercommunication offices

1 Large newly finished show room, 45 x 48'

1 Two story warehouse

Be represented in the nation's capitol. Will rent all or any part. Reasonable rent.

Cherrydale Cement Block Co., Inc.
3436 Lee Highway, Arlington, Va.

GERSON'S GOOD WILL BUILDERS

Advertising necessities for the block industry. Line Pins, Twigs, Corner Blocks, Calculators. Complete catalog on request.

GERSON CO.
82 Deering Rd. Mattapan, Mass.

LOWER COST

packer-head wings

Proved to last as long or longer — yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

FOR SALE

Block plant located near Phila. area can be bought as package unit or equipment can be purchased separately.
1 Besser Vibrapac complete with magnetic off-bearer and pallet return
1,000 Plain Pallets 18½ x 26 x 5-16
4", 12", 8", Mold Boxes
50 Steel Racks 72 Block capacity
1 Praschak 30 cu. ft. mixer and skip loader with 20 H.P. motor
1 Kewanee 50 H.P. Low Pressure Horizontal boiler
1 Hyster Fork truck 4,000 lbs. capacity
1 Yale electric platform truck with charger, 4,000 capacity
1 Stoopmobile front end loader 1 yd. capacity

CALN BLOCK COMPANY
2471 Wayne Ave., Coatesville, Pa. Phone 2860

FOR SALE

1—Elwell Parker Platform lift truck Lifts 11"—bed 24" x 90"—Ready power

No reasonable offer will be refused.

FALMOUTH CEMENT WORKS
Box 12
Teaticket, Cape Cod, Massachusetts

PLAIN PALLETS CLEANED
IN YOUR PLANT
PALLET SERVICE CO.
R. 2—Phone 3-3271—Oxford, Ohio
We use Besser Equipment

FOR SALE BY OWNER

1 Semi automatic block machine, like new. $750.
1 Dunbrick machine, like new 3000 steel pallets. $3,000.00
1 Dunbrick machine, really like new 3000—12 x 16 and 2000—8 x 12 pallets. $5,995.00
1 #80 Fleming hydraulic operated. Also power head with all molds. 3½ years old and used very little. $2,500.00
1 Brickcrete machine. Semi automatic. Has $3,000.00 worth of fine brick molds. $1,600

The prices quoted above are FOB our factory, 10833 St. Charles Rock Road, St. Ann, Missouri. For full information regarding machines as listed phone HA. 9-1163—or write:

H. E. GROSSENBACHER
9741 Lackland Rd., Overland 14, Mo.

1—18 cu. ft. Stearns mixer with motor
1—18 cu. ft. Skip Loader with meter
1 #7 Joltcrete with 4—8—12" mold boxes
Appx 6,000 pressed steel pallets 4—8—12"
Hand Lift Trucks—35 Racks for Pressed Steel Pallets.
23 Ton Winslow Binabatch w/25 ft. bucket elevator
Multiplex Chimney Block Machine. Approx. 150 pallets
Going out of business. Priced to sell $6,000.00 F.O.B., Lancaster, Pa.

MARIS L. HACKMAN
1815 Willow Street Pike, Lancaster Pa.

...before it TALKS

...is the way our doctors put it—"Our chances of curing cancer are so much better when we have an opportunity to detect it *before it talks.*"

That's why we urge you to have periodic health check-ups that *always* include a thorough examination of the skin, mouth, lungs and rectum and, in women, the breasts and generative tract. Very often doctors can detect cancer in these areas long before the patient has noticed any symptoms.

For more life-saving facts phone the American Cancer Society office nearest you, or write to "Cancer"—in care of your local Post Office.

American Cancer Society

---

unbreakable
PALLET RINGS
Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

SACRIFICE
$5000.00 Complete

Model K 47 Hydro-Korpak block machine with 5 HP, 3 Phase, 60 Cy. motor and attachments to make all standard 8" blocks. 25" Gyromatic mixer completely equipped with 10 HP. back geared motor, and hoist with 5 HP. back geared motor including magnetic switch for automatic safety stop at top and bottom. 1—Korpak Stripper block machine with power feeder and hopper with Nema type drip-proof motor.
3000 pallets—perfect condition

MUST MOVE IMMEDIATELY

This equipment is in excellent condition and was used for experimental purposes only.

IDEAL ENGINEERING CO., INC.
4469 Bragdon St. Indianapolis 26, Ind.
Phone: Liberty 6-2403

ALSO SEE WHERE TO BUY ADVERTISING ON OTHER EQUIPMENT IN ROCK PRODUCTS' GENERAL SECTION

WHERE TO BUY

FOR SALE

One Praschak, two-block machine, complete with 4" and 8" cored pallets. Good working condition. Bargain.

FLEMING MANUFACTURING CO.
Cuba, Missouri

CONCRETE BLOCK MACHINE
FACTORY RECONDITIONED

FMC-180, plain pallet block machine, guaranteed. Comes complete with motors, and mold box. Capacity 1400 blocks daily, $2750.00. Financing available.

FLEMING MANUFACTURING CO.
Cuba, Missouri

FOR SALE—ALL STEEL

500—2¾" channel forms
500—3¾" channel forms
One piece, leak-proof concrete channel slab forms at 25% of original cost.

BOX 0-85 CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

UNIVERSAL CONCRETE PIPE MACHINE, Jackets, Pallets and all parts for manufacturing Tongue & Groove Pipe, 21" through 60"—4 Forms and complete equipment for casting 84" pipe, also other pipe casting forms, for sale for delivery about March or April. Correspondence invited for complete list and prices.

BOX 0-93, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

BULK CEMENT BIN WITH 10' SCREW FOR DISCHARGING CEMENT. VERY REASONABLE.

NIEB CONCRETE PRODUCTS CO.
U. S. 31 & Fort Street, Niles, Mich.

PLAIN STEEL PALLETS

made accurately
to
your specifications

THE REGENT STEEL CO.
3361 East 80th St., Cleveland 27, Ohio
Tel.—VUlcan 3-8500

FOR SALE

GO-CORP. Senior Block Machine. 3 years old with molds for making 4", 6", 8", 10", 12" blocks. One-piece chimney unit and attachments for ½ chimney unit. Attachments to make all type of special blocks including 10" return corners. One Off-bearer complete with magnet and electrical controls.

BOX 0-95, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED by a substantial company now producing concrete masonry building units a superintendent to take charge of designing, building and operating an additional plant in which all types of pre-cast structural shapes will be produced.

Exceptional opportunity for the right man. In making application, please state experience and salary desired. **BOX 0-76, CONCRETE PRODUCTS, 79 W. Monroe St., Chicago 3, Ill.**

FOR SALE

Burmeister 3 cu yd semi-automatic central mix plant; 175 ton 3 compartment aggregate bin; two 475 bbl. cement bins; water metering equipment; automatic oil-fired boiler; air compressor and including corrugated aluminum enclosure.

BOX 0-81, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

Molds for precasting well curb, 24", 30", 36" outside diameter with 2" wall thickness. Please quote quantity, condition and price in first letter.

Worthington Block & Builders Supply
Worthington, Minnesota

SALESMEN WANTED

Prominent Block Machine Manufacturer has several territory openings (Southeast and Mid West) offering good immediate earnings, excellent future potential. Experience selling to Block Plants desired. Write in confidence, sending complete resume of experience and personal data to: BOX 0-91, CONCRETE PRODUCTS, 79 W. Monroe St., Chicago 3, Ill.

FOR SALE
All Steel

500—2¾" channel forms
500—3¾" channel forms
One piece, leak-proof concrete slab forms at 25% of original cost.

BOX 0-88, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

FOR SALE

Complete, small block plant. Kent Blockmaker, 4000 pallets, 30 racks, mixer, conveyor, otler, and spare parts. Everything to equip a small plant. Installing larger equipment. Can be seen in operation. Priced right.

MAYO LIME PRODUCTS CO., INC.
Mayo, Florida

FREE SERVICE for Buyers

Get information and prices quickly on machinery, equipment. Check item (or items) about which you desire information. Send to us.

*Specify type.

Send to: Research Service Department

ROCK PRODUCTS

79 West Monroe St. Chicago 3, Ill.

- ___ Admixtures, Aggregate
- ___ Aftercoolers, Air
- ___ Agitators*
- ___ Aggregates (special)*
- ___ Air Compressors
- ___ Air Separators
- ___ Asphalt Mixing Plants
- ___ Bagging Machines
- ___ Bags*
- ___ Barges
- ___ Batchers
- ___ Belting, Conveyor, Elevator, Power Transmission*
- ___ Belt Repair Equipment
- ___ Bin Level Indicators
- ___ Bins and Batching Equipment
- ___ Bits*
- ___ Blasting Supplies
- ___ Block Machines,* Concrete Building
- ___ Bodies, Trailer*
- ___ Brick Machines and Molds
- ___ Buckets*
- ___ Bulk Cement Handling Equipment
- ___ Bulldozers
- ___ Cars, Industrial
- ___ Central Mixing Plants
- ___ Classifiers
- ___ Clutches
- ___ Coal Pulverizing Equipment
- ___ Concentrating Tables
- ___ Concrete Forms
- ___ Concrete Mixers*
- ___ Concrete Mixing Plants
- ___ Concrete Specialty Molds
- ___ Concrete Waterproofing and Dampproofing
- ___ Conveyers*
- ___ Crushers*
- ___ Coolers
- ___ Cranes*
- ___ Curing Equipment
- ___ Derricks
- ___ Dewatering Equipment, Sand
- ___ Diesel Engines
- ___ Dragline Cableway Excavators
- ___ Draglines
- ___ Dredge Pumps
- ___ Drilling Accessories
- ___ Drills*
- ___ Dryers
- ___ Dump Bodies*
- ___ Dust Collecting Equipment & Supplies
- ___ Electric Motors
- ___ Engineering Service, Consulting and Designing
- ___ Explosives & Dynamite
- ___ Fans and Blowers
- ___ Feeders*
- ___ Fifth Wheel, Heavy Duty Special
- ___ Flotation Equipment
- ___ Front End Loaders*
- ___ Gasoline Engines
- ___ Gear Reducers
- ___ Generator Sets
- ___ Grinding Media*
- ___ Gypsum Plant Machinery
- ___ Hard Surfacing Materials
- ___ Hoists
- ___ Hoppers
- ___ Kilns: Rotary, Shaft, Vertical
- ___ Locomotives*
- ___ Lubricants*
- ___ Magnetic Separators
- ___ Masonry Saws
- ___ Mills*
- ___ Pipe*
- ___ Pumps*
- ___ Scales*
- ___ Screen Cloth*
- ___ Screens*
- ___ Scrubbers: Crushed Stone, Gravel
- ___ Shovels, Power*
- ___ Speed Reducers
- ___ Tanks, Storage
- ___ Tires and Tubes
- ___ Torque Converters
- ___ Tractor Shovels*
- ___ Tractors*
- ___ Trailer Dump Bodies
- ___ Trucks, Bulk Cement
- ___ Trucks, Industrial
- ___ Trucks, Mixer Body
- ___ Trucks, Motor
- ___ Valves
- ___ Vibrators
- ___ Welding and Cutting Equipment
- ___ Winches
- ___ Wire Rope

If equipment you are in market for is not listed above, write it in the space below.

Your Name _____ Title _____

Firm Name _____

Street _____

City _____ State _____

CP-1-57

INDEX TO ADVERTISERS IN THE CONCRETE PRODUCTS SECTION OF ROCK PRODUCTS

SEE INDEX OF ROCK PRODUCTS SECTION ADVERTISERS ON PAGES 241, 242

Everybody's headed for St. Louis!

37th ANNUAL NATIONAL CONCRETE MASONRY ASSOCIATION CONVENTION

10th CONCRETE INDUSTRIES EXPOSITION

Kiel Auditorium, St. Louis
FEBRUARY 25-26-27-28

ALL THAT'S NEW in promotion and research! Big, new equipment and materials exposition! Coming up are four days which can add dollars to your profits, ideas for promotion, ways to cut costs—and a little fun besides. This is your chance to find out what's new in the block and ready-mix business, what your colleagues are doing, what you can do better in your own home town. Send your reservation now.

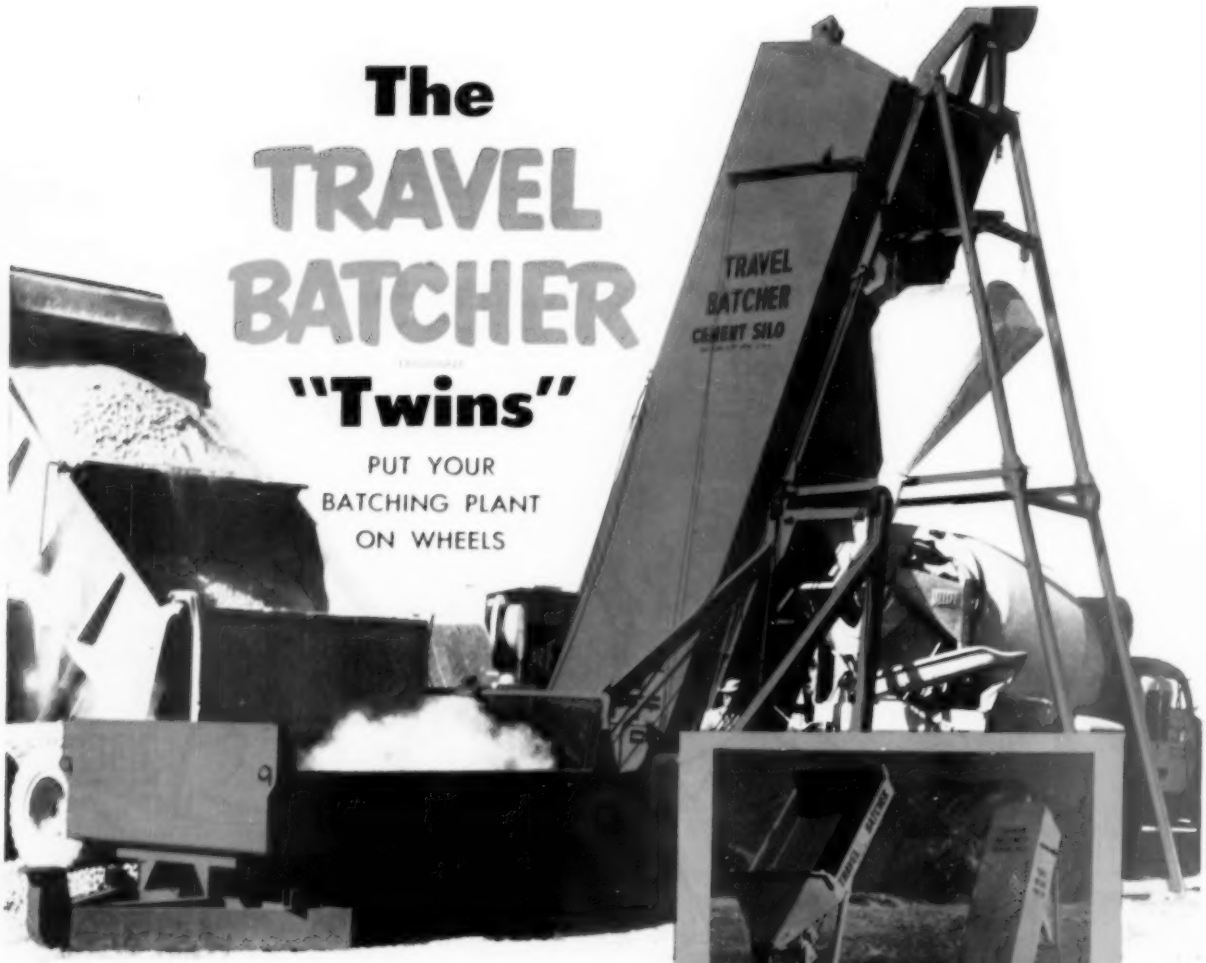
ADDRESS HOTEL RESERVATIONS:
Hotels Convention Reservation Bureau, N.C.M.A.
Room 406, 911 Locust Street, St. Louis 1, Missouri

NATIONAL CONCRETE MASONRY ASSOCIATION • 38 SOUTH DEARBORN • CHICAGO

Enter 1514 on Reader Card

The TRAVEL BATCHER "Twins"

PUT YOUR BATCHING PLANT ON WHEELS



- Give you a continuous supply of quality concrete
- Move your batching plant right to the job-site
- Make one mixer truck do the work of several
- Save time, labor, materials, and equipment

You can erect the Travel-Batcher Cement Silo in minutes, using the Travel-Batcher, as shown above.

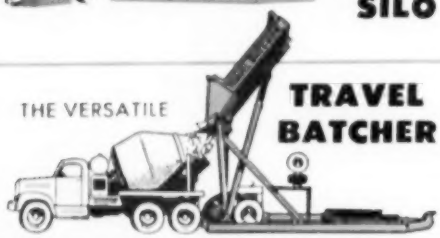
THE NEW TRAVEL-BATCHER **PORTABLE CEMENT SILO**

Now you can use lower cost bulk cement -- and save both time and labor cost. The Travel-Batcher Cement Silo sets up, ready for batching, in 30 minutes. One-man, high-capacity operation. It is designed and built to give you long, trouble-free service.

Capacity: 200 barrels (regular model) 350 barrels (special model)

Power: 20 h.p. gas engine or 10 h.p. electric motor

Traveling dimensions: overall length 33'; height 12'; empty wt. about 14,000 lbs.



THE VERSATILE **TRAVEL BATCHER**

Now you can handle profitable jobs you would otherwise turn down. Sets up ready for batching in 10 minutes. Production up to 100 yards per hour. Can be used as a transfer unit, a weigh batcher. Charge it with front-end loader from job-site stockpile, or with dump truck, hauling dry materials from plant.

SEE YOU AT BOOTH 83 AT THE CONCRETE INDUSTRIES EXPOSITION FEBRUARY 25-28, KIEL AUDITORIUM, ST. LOUIS, MISSOURI

Write for complete information, prices, and name of your nearest Travel-Batcher representative.

TRAVEL BATCHER CORP. 6450 Holladay Blvd. Salt Lake City, Utah

Enter 1515 on Reader Card

WHERE TO BUY

SHOVELS — DRAGLINES DRILLS CRANES — EUCLIDS

625 Page Diesel Drag, 160', 10 yard
6160 Bucyrus Monighan Elec. Drag, 160', 8 yd.
621-S Page Diesel Drag, 125', 7½ yd.
200-W Bucyrus Monighan Drag, 125', 6 yd.
7-W Monighan Elec. Drag, 120', 7 yd.
2400 Lima Drag, 110', 6 yd.
7200 Marion Diesel Drag, 135'
120-B Bucyrus Erie Elec. Drag, 115', 5 yd.
5-W Bucyrus Erie Drag, 120', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
1055 P&H Drag, 90, 3½ & 4 yd.
1201 Lima Drag, 85', 3 yd.
54-B Bucyrus Erie Comb. Crane & Drag
802 Lima Cranes
3500 Manitowoc 60 ton Crane
3500 Manitowoc Drag, 80', 2½ yd.
955 P&H Drag, 90', 2½ yd.
903 Osgood Drag, 70', 2 yd.
5480 Marion Elec. 15 yd. Shovel
170-B Bucyrus Erie Elec. 6½ yd. Shovel
1600 P&H 6 yard Shovel
2400 Lima Standard 6 yard Shovel
120-B Bucyrus Erie Elec. 4½ yd. Shovel
4500 Manitowoc 4 yd. H. L. Shovel
1201 Lima Standard 3½ yd. Shovel
1201 Lima 2½ yd. H. L. Shovel
3500 Manitowoc 2 yd. H. L. Shovel
3000-B Manitowoc 2 yd. Shovel
820 Lorain 2 yard Shovel
803 Lima 1¾ yd. H. L. Shovel
Unit 1020 ¾ yd. Shovel—1 yr. old
600 Reich Heavy Truck Mounted Rotary Air Drills (Both Lever Arm and High Mast)
Davey Rotary Truck Mounted Air Drills
Mayhew Rotary Truck Mounted Air Drills
58-BH Joy Champion Rotary Air Drills
42-T, 29-T and 27-T Well Drills
Portadrill Truck Mounted Air Drill
Euclid Trucks—27FD, 18FD, 8TD, 36FD, 82FD, 13TD, 14TD, 63TD—Bottom & Rear Dumps

FRANK SWABB EQUIPMENT CO., INC.

313 Hazleton Nat'l. Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

QUARRY EQUIPMENT

Cedarapids 4033 hammermill secondary. Rebuilt.
Cedarapids 1036-2416 Junior tandem. Rebuilt.
Cedarapids single pass plant with 1024 jaw.
Cedarapids BBB 1036 Scalping unit on rubber.
30"x82' Belt Conveyor with 15 H.P. wrapdrive.
36" x 4'6" Apron Feeder.
Williams 20" x 33" pulverizer.
12" x 35' inclined open elevator. New.
Seco 3' x 10' triple deck vibrating screen. Reconditioned.
27½ ton, single-compartment, 8' x 12' bin.
60-ton, two-compartment, 8' x 18' storage bin with clam gates.
100-ton, two-compartment, 13' x 23' bin.
Special bins to your specifications.
Conveyors—18"—24"—36". Also conveyor belting.
18" diameter x 20" face magnetic pulley.

SHOVELS AND CRANES

Lorain 820 2-yard diesel shovel-crane-drag. Reconditioned.
Lorain 75A shovel, 1¼ yd. Very good condition.
Lorain L50K 1-yard diesel crane. Excellent.
P & H 255A, ¾-yard diesel shovel.
Lima 34 Paymaster ¾-yard diesel shovel. Good.
Lorain Byers 83 ¾-yard diesel powered backhoe.
Lorain Byers 83 ¾-yard gas powered clamcrane.
Lorain 15 ½-yard gas powered Backhoe.
Buckeye 70 ¾-yard gas powered shovelcrane.
Bucyrus-Erie 10B ⅜-yard shovel, hoe, crane.
Link Belt LS-50 backhoe, gas power.
Lorain MC-504-W crane clam. Very satisfactory condition.
American 375BT truck crane.

TRACTORS, TRUCKS, SCRAPERS, ETC.

1—Euclid 18-yard twin engine scraper. Very good condition.
1—Euclid 15 5-yard scraper. Excellent condition.
1—Euclid 12-yard scraper. Excellent condition.
6—Euclid 13-yard bottom dumps.
2—Euclid tractors with 3200 gallon water tank semi-trailer.
1—Euclid Model 3BV loader.
3—Caterpillar DW-10 scrapers. Reconditioned.
1—Caterpillar DW-10 with Athey side dump.
1—Caterpillar DW-15 scraper. Excellent.
2—Allis Chalmers HD-10 tractors with hydraulic bulldozer blades.
1—International TD9 crawler tractor.
1—International TD18 with Bucyrus-Erie bulldozer blade. Excellent condition.

DIESEL POWER UNITS

Cat. D4600, 6- cylinder, 66 H.P. at 1200 RPM.
Cat. D7700, 74 H.P. at 1000 RPM. Rebuilt.
Cat. D13000, 145 H.P. at 1000 RPM. Rebuilt.
GMC 671, 6-cylinder, rebuilt.
GMC Twin Diesel, rebuilt.
GMC 3021C, 3-cylinder, new.
GMC 371RC 38A, 3-cylinder. Rebuilt.
International UD18A, 6-cylinder. Reconditioned.

ASPHALT PLANT

Barber-Greene 848 Model with drier, gradation unit, etc.

AIR COMPRESSORS

105 cu. ft. Ingersoll-Rand gas portable.
142 cu. ft. Gardner-Denver two-stage stationary.
160 cu. ft. Ingersoll-Rand gas portable.
500 cu. ft. Ingersoll-Rand, Waukesha power.
420 cu. ft. Gardner-Denver two-stage stationary. Rebuilt.
312 cu. ft. Ingersoll-Rand Type 40 stationary, electric, practically new.

L. B. SMITH, INC.

Camp Hill, Pa.

Phone Harrisburg REgent 7-3431

SPECIALS

Hardinge ball mill 8'x36" 100 HP AC motor complete, spare new liners available.
Hardinge ball mill 8'x48" 200 HP AC motor Falk reduction gear. 15 tons balls.
F. S. Smidth tube mill 6'6"x21' Silex brick lined, 350 HP 180 RPM syn. motor 17 tons Nikard steel balls, new discharge head.
Pennsylvania SXT-13 hammermill 350 HP 900 RPM syn. motor, extra new shaft, discs, many spare parts. Motor rewound, prac. new condition.
2 W. S. Tyler-Hummer screens 4'x10' two deck.
Jeffrey vibrating feeders 2 12"x30" 3 18"x30".
Inclined skip hoist 95' centers, 70' high, bucket 120 cu. ft. 40 HP elec. AC motor.
Two bucket elevators 58' high 14"x8"x8½" buckets.
Inclined bucket stone elevator 126' long 14"x8"x8½" buckets, 24"x7½" steel housing.
3 Williams Mdl. 278 hammermills, V-belt drive.

SHOVELS—CRANES—DRAGLINES

Northwest 6, 1½ yd., dragline-crane, 98' boom.
B-E 22B ⅝ yd. Shovel-Crane-Backhoe-Drag.
Northwest 80-D Diesel Shovel 2½ yd. New 1952.
Lorain L-820 2 yd. Shovel-Drag-Crane 100' bm.
Buc-Erie 54-B Diesel Shovel, 2½ yd.
Lorain Model 54C 254W truckcrane 23 tons cap.
Hay City 190T61 truck crane 25 tons. Diesel.
Link Belt HC90 truck crane 35 tons 90' alloy boom.

CRUSHERS—KILNS—DRYERS

JAW: Acme 10x20, 15x36, 14x26, 14x28, 10x42, 16x32, 18x32, 25x40. Eagle 10x16, 20x36. Diamond 24x36". Cedar Rapids 10x20, 15x36, 20x36, 25x40. Farrell 10x20, 18x30, 14x36, 18x36, 36x48. Buchanan Type C 30x42, 30x32. Traylor 18x36, 24x36. Allis-Chalmers 20x18. Good Roads 10x30. Telsmith 18x32. Pioneer 30x42.
GYRATORY: Al-Chal 322, 6', 7½", 8, 5, 9K, 10, 20 and 30 Telsmith 8H, 28" Intercone.; Kennedy Van Saun 7, 19, 25½-S, 37½, 38; Traylor TY 1'8", 4' Type TS, TY 3.
ROLL: Cedar Rapids 40x20. Pioneer 40x22. Pioneer 30x18. Telsmith 24x16. Universal 40x24 double.
HAMMERMILL: Jeffrey Type B3 24x20, Type B 36x24, 30x36, 30x42, Eagle 24x24, Stedman 24x30. Cedar-Rapids 50-50, 30x33. Penn Model SXR 100.
BALL MILL: K.V.S. Type M 6'x8' Airsweept, Marcy No. 64½, Hardinge conical 10'x48", 10'x30", 6'x22", 6'x12', 6'x7', A-C 6'x16'.
TUBE MILLS: 5'x16', 5'x20', 5'x22', 6'x12'.
ROD MILL: Jackson & Church 4'x10' 10 ton rods, new. Marcy 3x8, 5x12, 6x12, Ruth 4'x11'.
AUTOCLAVES: Jackson & Church bolted head 50'x6' "Quick Acting" head 50'x6'6".
CONE: Symons 2' and 3' coarse bowl.
KILNS: 4'x41', 5'x30', 6'x50'6", 6'4"x45', 6'x72', 7'x110', 10'6"x105', 8'x10', 6'x90'.
DRYERS: Louisville 6'x30', 6'x50', others 4'6"x40', 7'x80', 6'x90' complete with motor. NEW.
COMPEB MILLS: A-C 7'x24' with motor drive.

CRUSHING PLANTS

Cedar-Rapids AA-2226 primary port. Diesel.
Cedar-Rapids 3033 hammermill Diesel. Trailer mtd.
Eagle washing plant, classifier sand screws, screen.
Pioneer 150 Primary 2056 Cat D8800 Diesel.
Pioneer Secondary 4022 roll Cat. D 13000.
Cedar-Rapids Pitmaster Portable.
Cedar Rapids 40x33 Port. Secondary. Diesel.
Aus-West. 2540 Port. Primary.
Pioneer Port. 11x30 jaw. 40x20 rolls.
Pioneer 24V Gravel Plant.
Amer. Good Roads 18x30. Diesel. Complete.
Universal 20x36 jaw. 30"x18" roll, plant complete.

CONCRETE PLANTS AND EQUIPMENT

Blaw-Knox 4180 3 compt. aggr. 1 cement 4000 bbls.
Erie Strayer port. concrete mix plant 25 yds. per hr.
Blaw-Knox 100 tons 3 compt. aggr. 400 BI cement.
Butler 600 bbl cement bin. All equipment.
Noble CA-245, complete plant, almost new.
Johnson 125 yd. 4 compt. 150 bbls cement, 750 bbls silo U.S. Corps Engrs. automatic.
Johnson 200 ton automatic 3 compt. aggr. with Heltzel 400 bbl. cement 797 cement silo.
Johnson Roadbuilder 50 yd 2 compt. aggr. 1 cement Blaw Knox & Johnson cement silos, 325, 475, 547 bbls.
Mixermobile 2 yd. 45' tower. Extension to 155'.
Fuller Pfizer Model 365 cement pump.

SAND AND GRAVEL HYDRAULIC DREDGES

Morris 16" x 14". Portable. Electric.
10" Portable Diesel powered. Complete.
12" Diesel powered, pontoon mounted. Complete.
Ellicott 8" with cutter. Diesel Hull 48'x18'x3'6".
8" Hydraulic Diesel. On 32'x8' steel pontoons.
Amaco 10" Diesel power portable. Excellent.
6" portable Diesel complete with cutters, etc.
8" H-P twin Diesel drive. Complete.

SCREENS

Tyler F-360 4'x12' 2 deck w/spray bars.
Tyler Hummer 4'x10' double deck.
Trommel 6'x45' 75 H.P. elec. motor.
Telsmith 84"x12' Super Scrubber 75 H.P. motor.
Tyler-Niagara 5 deck 7½ H.P. A.C. motor.
New Holland 4'x12' 4 deck.
Telsmith 5'x12' dbl. deck elec. motor.

RICHARD P. WALSH CO.

20 Church St. New York, N. Y.
Cortlandt 7-0733 Cable: HIGHWALSH

SURPLUS EQUIPMENT

Available throughout the U.S.—Items you need may be available near you. Your inquiries would be appreciated.

Buildings	Derricks	Loaders	Pavers
Bins	Draglines	Locomo-tives	Rollers
Barges	Ditchers	Mixers	Rail
Buckets	Dredges	Motors	Scales
Belting	Drills	Mills	Screens
Cableways	Engines	Misc.	Shacklines
Cars	Excavators	Machine-tools	Shovels
Compressors	Feeders	Pulverizers	Tanks
Conveyors	Graders	Pipe	Tractors
Crushers	Generators	Pumps	Trailers
Dryers	Hoists		Etc., Etc.
	Kilns		

(I can sell your surplus equipment)

ALEX T. McLEOD

MARIETTA, KANSAS

FOR SALE OR RENT

65 ton Whitcomb Diesel Electric Loco.
45 ton General Electric Diesel Elec. Loco.
10 ton Plymouth Diesel Loco. New 1950.
Christian 2D Hoist & Swinger, 138 HP Buda Diesel Engine. 15,000# SLP.
2 100 HP Lacey Portable Horiz. Fire-Box Boilers. 200 lbs. Oil Fired. ASME.
30 ton Wiley Stiffleg Derrick. 80' Boom
1700 CFM Joy Elec. Air Compressor New 1954.
600 CFM 1-R Gyrofio Diesel Compressors
4 yd. P&H 1055 Dragline new 1950.

MISSISSIPPI VALLEY EQUIPMENT CO.

1907 Railway Exchange St. Louis 1, Mo.

JAW CRUSHERS

60"x48" to 6"x3"

New and used RELIABLE

"Farrel-Bacon" Jaw Crushers

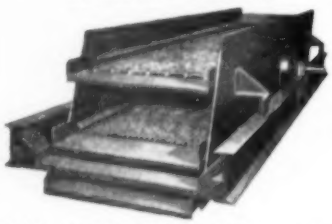
BACON-PIETSCH CO., INC.

26 Park St., Montclair, N. J.
29 Washington Ave., Hamden, Conn.

BONDED EQUIPMENT BARGAINS

IMMEDIATE SHIPMENT FROM OUR FACTORY—WRITE, WIRE OR PHONE

NEW BONDED® HEAVY DUTY VIBRATING SCREENS



HEAVY DUTY MODELS, TYPE BS: Four bearing positive throw eccentric shafts; 3' x 6' to 5' x 14', 1 to 5 decks. Write for New 8-page Bulletin No. 1087.

Model Number	Screening Area	No. of Decks	Sale Price
124AS	2' x 4'	1	$ 463
224AS	2' x 4'	2	472
126AS	2' x 6'	1	472
226AS	2' x 6'	2	581
136AS	3' x 6'	1	581
236AS	3' x 6'	2	688
336AS	3' x 6'	3	956
138AS	3' x 8'	1	675
238AS	3' x 8'	2	815
338AS	3' x 8'	3	996
136BS	3' x 6'	3	1303
436BS	3' x 6'	4	1447
138BS	3' x 8'	1	1231
238BS	3' x 8'	2	1282
338BS	3' x 8'	3	1375
248BS	4' x 8'	2	1865
348BS	4' x 8'	3	2035
2410BS	4' x 10'	2	1953
3410BS	4' x 10'	3	2305
2412BS	4' x 12'	2	2319
3412BS	4' x 12'	3	2635
4412BS	4' x 12'	4	2833

NEW BONDED® GENERAL DUTY VIBRATING SCREENS

GENERAL DUTY SCREENS, TYPE AS: Eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. Write for New 8-page Bulletin No. 1086.

For mineral, chemical and other industrial products. Fast, efficient and economical for cleaning, sizing, grading, dewatering. Made in all metals including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation wet or dry.

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

Complete Ready-Fab sections quickly and easily joined together on the job. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS listed, with conveyor belting in two pieces. Conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam. head pulley and 16" diam. tail pulley mounted on 2 1/4" or 2 7/8" diam. shaft. Belt is new 4-ply, 28-oz. duck, 1/4" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

Remember, You Save Up To 50%

CONVEYOR PRICES INCLUDE BELTING

Belt Width	Length of Conveyor	List Price	Sale Price
14"	25'	$1397	$ 722
14"	50'	2222	1144
14"	85'	3377	1733
16"	26'	1262	636
16"	45'	2137	1088
16"	60'	2662	1359
16"	90'	3712	1900
18"	25'	1477	794
18"	45'	2217	1166
18"	70'	3142	1648
18"	85'	3697	1933
18"	100'	4252	2220
18"	130'	5362	2797
20"	25'	1517	828
20"	60'	2882	1533
20"	75'	3467	1838
20"	90'	4052	2145
24"	25'	1590	898
24"	45'	2430	1330
24"	70'	3480	1875
24"	100'	4740	2514
24"	120'	5580	2950
24"	150'	6840	3603
30"	50'	2911	1617
30"	70'	3871	2119
30"	90'	4831	2614
36"	25'	1818	1118
36"	45'	2858	1678
36"	60'	3638	2096
36"	100'	5718	3214

For conveyors longer or shorter than those listed above, add or deduct the following per foot prices according to belt width. Prices include belting. Write For Bull. # 1138.

For 14" belt	$16.84 per foot
For 16" belt	18.04 per foot
For 18" belt	19.24 per foot
For 20" belt	20.37 per foot
For 24" belt	21.78 per foot
For 30" belt	24.75 per foot
For 36" belt	27.95 per foot

Bonded troughing idler conveyors are also available with truss type construction. Write for descriptive information and prices.

NEW CONVEYOR BELTING SAVE UP TO 25%

Heavy duty 4-ply, 28 oz. duck 1/4" top rubber cover by 1/32" bottom cover 12# to 15# average friction pull; 800# to 1000# average cover tensile rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.

Width	Ply	List Price	Sale Price
14"	4	$3.52	$2.83
16"	4	3.96	2.97
18"	4	4.38	3.29
20"	4	4.83	3.80
24"	4	5.68	4.26
30"	4	6.97	5.21
36"	4	8.26	6.18

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, 1/4" top rubber cover x 1/32" bottom rubber cover, 16# to 19# average friction pull, 2500# to 3000# average cover tensile belting. For more severe service, high tonnages and abrasion resistant. For handling stone, mineral ores, concrete, cement, coal and other similar materials, both wet and dry. Belt has molded rubber edge.

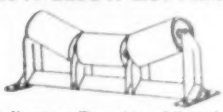
Width	Ply	List Price	Sale Price
16"	4	$4.71	$3.46
18"	4	5.23	3.83
20"	4	5.73	4.37
24"	4	6.74	4.94
30"	4	8.28	6.07
24"	5	7.90	5.78

The following belts are 5-ply, 32 oz. duck:

Width	Top Cover	Bottom Cover	List Price	Sale Price
24"	1/4"	1/32"	$ 8.56 foot	$ 6.42 foot
30"	1/4"	1/32"	10.52 foot	7.89 foot
36"	1/4"	1/32"	14.21 foot	10.66 foot

Other widths, plies, duck weights and cover thicknesses. Available at low prices. Write for Free Sample.

NEW IDLERS AND RETURN ROLLS 25% BELOW LIST PRICE



3-roll, 5" diameter Troughing Idlers for:

14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50

1—roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with easily replaceable prelubricated Sealed ball bearings. Also can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers priced from $61.00. Write For Bulletin #1138.

NEW BONDED® FEEDERS

Full information in Bulletin 1140. Write for it.

Priced from $225.00

New BONDED® Flight Conveyors

Heavy Duty Flight Conveyor

Mobile Tire-Mounted Drag Chain Conveyor

WRITE FOR BULLETIN NO. 1139

Prices from $463.00

BUILD IT YOURSELF WITH BONDED CONVEYOR PARTS & ACCESSORIES

Write for bulletin # 1138.

Return Belt Guide Idler **$11.75**

Carry Belt Guide Idler **$14.50**

Head & Tail **$149.00**

Self-Aligning Idler **$60.75**

Flat Roll Idler **$13.50**

Holdback **$99.00**

YOU ARE WELCOME To Visit the Bonded Factory Any Time.

Wing Pulley **$71.00**

Screw Takeup and Frame **$30.25**

Rubber Disc Impact Idler **$61.00**

1 H.P. Speed Reducer **$59.50**

More than 5,000 Mines & Quarries Have Modernized with Bonded Equipment

BONDED SCALE AND MACHINE COMPANY

PHONE: Hickory 4-2186, Days
128 BELLVIEW

WRITE FOR FREE CATALOG & PRICES

Mfgrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders

PHONE: AX. 1-2213, HU 6-3156, Evenings
COLUMBUS 7, OHIO

ALSO SEE READY-MIXED CONCRETE AND CONCRETE PRODUCTS EQUIPMENT
WHERE TO BUY ADVERTISING IN CONCRETE PRODUCTS SECTION

BONDED EQUIPMENT BARGAINS

IMMEDIATE SHIPMENT FROM OUR FACTORY—WRITE, WIRE OR PHONE

NEW BONDED® PLATE FEEDERS

Bonded "FP" Series Plate Feeders are for all non-flushing bulk materials. Coal, Cinders, Crushed Stone, Chemicals, Wood Chips are only a few of the materials which can be carried. Especially suited for installation under your present bins, hoppers and silos. Furnished with or without hopper. Capacities to 100 TPH. Write for Bulletin #1140.

Priced from $232.00

NEW BONDED BUCKET ELEVATORS

Open Elevator

Enclosed Elevator

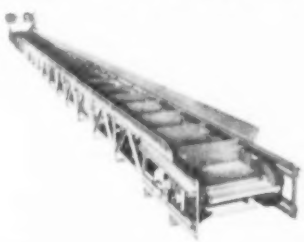
Bonded makes Open or Enclosed, Vertical or Inclined Bucket Elevators with continuous or spaced buckets mounted on chain or belting. They are recommended for small to medium size lumps, fine abrasive material such as dry sand, coke breeze, wet slag and many other bulk materials. Because of the wide variety of sizes and types, prices will be quoted on request. Write for Bulletin #1047.

HDF Series Plate Feeders for Abrasive Materials

Bonded HDF-18 Heavy Duty Feeders were especially designed for abrasive materials such as Ore, Rock, Crushed Stone, Gravel, Sand, Clinkers, Abrasive Volcanic Ash and Rock. Abrasion Resistant Alloy Steel Plate is used for all parts that contact the material. Feeders are process control instruments as well as material movers and help to prevent screens, crushers, grinders, etc., from being run empty, choke fed, or overloaded. Capacities to 250 TPH. Write for Bulletin #1182.

Priced from $595.00

NEW BONDED® FLIGHT CONVEYORS



Bonded flight conveyors are fast, efficient and economical. Used in movement of Gravel, Broken Rock, Coal, Cinders, Slag and other bulk material at angles up to 45 degrees. Made with an all steel truss framework and double guided chain. Flight sizes to 8" x 24". Made in portable and stationary models. Portable models are mounted on semi-pneumatic rubber tires and can be used to unload trucks, railroad cars, hoppers, etc. Ideal for feeding crushers, vibrating screens and other processing equipment. Write for Bulletin #1139.

Priced from $463.00

"F" Series Plate Feeders

Bonded "F" Series Plate Feeders for controlled feed of Clay Products, Coal, Cinders and other bulk materials. Built of structural and sheet steel. Welded construction for maximum strength. Four models. Variable speed control. Furnished with or without steel storage hopper. Capacities to 225 TPH. Write for Bulletin #1140.

Priced from $633.00

WRITE FOR FREE CATALOG AND PRICES

BONDED SCALE AND MACHINE COMPANY

Mfrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders

128 BELLVIEW, COLUMBUS 7, OHIO—Phones: HI 4-2186; AX 1-2213 Evenings

LIQUIDATION

Baltimore, Maryland

5—Bartlett & Snow 8½' x 35', 7' x 30', 6' x 30' direct heat Rotary Dryers complete with feeders, blowers, motors, 304 SS Clad 17' from feed end

1—Bartlett & Snow 6' x 30' direct heat Rotary Dryer, lifting flights and shell 405 SS Clad, complete with feeder, blowers and motor.

1—Hardinge 6' x 48" Conical brick lined Pebble Mill with 30 HP motor, disc feeder and fan.

1—Pennsylvania Reversible Hammer Pulverizer with 50 HP motor.

1—Raymond 16' dia. single whizzer Mechanical Air Separator with 50 HP motor.

4—Tyler Hummer 4' x 15', 3' x 15', Type 38 single deck Screens with Thermionic Units.

1—Tyler Hummer Screen 20" x 5'8" Junior Tandem with Thermionic Unit.

4—Link Belt totally enclosed Bucket Elevators 28' to 55' centers, 8" x 5" buckets, motor driven.

4—Bartlett & Snow totally enclosed Bucket Elevators 29' to 55' centers, 14" x 7" buckets, motor driven.

200 ft. of 24" and 30" Troughing idler Belt Conveyor.

150 ft. of Screw Conveyor 9", 12" and 18" dia. with steel troughs and covers.

1—500 Ton Rectangular Bin with cone bottom.

Representative on Premises

Your Inspection Invited

BRILL EQUIPMENT COMPANY

2401 Third Avenue, New York 51, N.Y.

KILNS—COOLERS—DRYERS

705-20 Link-Belt Roto Louvre, SS
502-16 Link-Belt Roto Louvre
8'6" x 35' Bartlett-Snow Rotary Dryer
7' x 30' Bartlett-Snow Rotary Dryer
6' x 30' Bartlett-Snow Rotary Dryers (2)
5' x 20' x ¾" welded

PULVERIZERS—MILLS—CRUSHERS

8" x 15" Pacific Jaw Crusher
18" x 18" Jeffrey 1-roll spiked
14" x 16" H. & S. 2-roll spiked
Raymond #1 Pulverizer
Pennsylvania Impact Pulverizer 50 HP
6' x 48" Hardinge Conical Mill
20" x 12" Jeffrey Hammer Style A, NEW
15" x 8" Jeffrey Hammer Style B, NEW

BUCKET ELEVATORS

28' to 53'6" c/c 8x5 buckets (4)
29' to 55'4" c/c 14x7 buckets (4)

SCREENS

Rotex #21, 40" x 84"
Robinson Gyro Sifter 28A
Tyler-Hummer 4' x 15' single deck
Tyler-Hummer 3' x 15' single deck
Tyler-Hummer 20" x 68" Jr. tandem
Universal Roads 18" Cent. Separator

MISCELLANEOUS

150 HP Union Water Tube Boilers
47' Screw Conveyor, 15" 2 HP motor
12" Merrick Weightometers
Rotoclone Collector, Type W, Size 36

SEND US YOUR INQUIRIES

HEAT & POWER CO., INC.

60 East 42nd St., New York 17, N.Y.

MURRAY HILL 7-5280

(MACHINERY & EQUIPMENT MERCHANTS)

MOTORS AND GENERATORS

All sizes, new and rebuilt. Starters, accessories, pulleys and repair parts. Gear motors, Falk Shaft mounted Speed Reducers, couplings and V-belt drives.

Expert Repair Service

NUSSBAUM ELECTRIC COMPANY

220 E. Douglas Ave., Fort Wayne, Ind.

FOR SALE BY OWNER

1—Symons Double Decked Screen
4' x 12' with extra frames

1—SECO Rebuilt double decked screen
4' x 16' with extra frames

OHIO VALLEY SAND CO.

P.O. Box 3 **New Martinsville, W. Va.**

BALL MILLS

For Sale

2—4' x 8' Kennedy-Van Saun Ball Mills manganese steel liners, motor driven, with Feeders, Blowers, etc.

Previously used as Coal Pulverizers.

Now installed at Camden Forge Co., plant, Camden, N.J.

Available for immediate shipment.

CONSOLIDATED PRODUCTS CO., INC.

55 Garden St., Hoboken, N. J.
Tel.: OL-9-4425 N.Y. Tel.: BA-7-0600

SAND SCREW: 24" x 25', steel box, motor, reducer, etc. New condition.

ASPHALT PLANT: Barber Greene with 72" x 30' dryer, etc.

PAYLOADER: Hough 1½ yd. capacity.

PUMP: 8" x 6", 4 stage, 1400 GPM, 1200' head, 600 H.P. motor.

MINE LOCOMOTIVES: One 13 ton, 36" gauge and one 15 ton, 42" gauge, trolley type, 250 volt.

OVERHEAD CRANE: Morgan 40 ton, 55' span, 230 volt, D.C.

LOCOMOTIVE CRANE: Industrial Brownhoist, Steam, 60 ton with 70' or 80' boom, excellent condition.

ROAD ROLLERS: 1—8 ton tandem and 1—10 ton, 3 wheel.

DRAGLINES: Monighan 8 yd., 160' boom, diesel powered. Also, one 8 yd. electric. Monighan 5 yd., 120' boom. Monighan 2-W, 85' boom, diesel powered. Page 625, diesel, 150' boom, 10 yd. bucket.

SHOVELS: Marion 4161, 5 yd. capacity, electric, with or without dragline equipment. Also, one 5 yd. with diesel electric power. Bucyrus Erie 54-B and Northwest 80-D, both diesel powered.

COMPRESSORS: Fuller Rotary 350 H.P., 440 volt, 1850 CFM at 100 lbs. Ingersoll Rand PRE2, size 33 x 24 & 20½ x 24 with synchronous motor, 150 RPM. Chicago Pneumatic OCE, 26 x 15 x 18 with 400 H.P. syncronous motor, 2200 volts, 200 RPM.

BELT CONVEYORS: One 60" x 170' and one 60" x 300', complete with all mechanical parts, belt, supporting structures, motors and drive.

PAN CONVEYOR: 48" x 110' complete with motor, reducer, etc., heavy duty type, designed for rock.

SCALPING SCREENS: Heavy duty Robins 60" x 14', 6" openings, 25 H.P., 220/440 volt motor. NEW condition.

DRYERS & KILNS: Rotary Kiln 10'8" x 104', ¾" welded plate, excellent condition. 2—Heavy duty 9' x 70' dryers with all equipment, NEW condition.

JAW CRUSHERS: 10" x 20", 15" x 36", 18" x 30", 24" x 36", 30" x 42", 40" x 42", with or without motors.

GYRATORY CRUSHER: Allis Chalmers 30".

REDUCTION CRUSHERS: Allis Chalmers Hydrocone size 636 and one 548, with motors and drive.

WILLIAMS material handling, 1¼ yd. capacity.

WE BUY AND SELL EQUIPMENT THROUGHOUT NORTH AND CENTRAL AMERICA

A. J. O'NEILL

LANSDOWNE, Pa.

Phila. Phones: MAdison 3-8300—3-8301

FIFTEENTH ANNIVERSARY SALE

FOUR CRANES & SHOVELS

Marion "331" ¾ yd. Shovel or Crane.

P&H "255A" ¾ yd. Diesel Shovel.

Insley "K-12" ⅜ yd. Trench Hoe or Dragline.

Unit "514" ⅜ yd. Trench Hoe, fair condition.

Link Belt Shovel Attachment complete, for LS-85 (¾ yd.)

FIVE TRANSIT MIXERS

Jaeger 3 yd. (4¼ yd. Agitator) Hi-Discharge, 1945-1947 Models, one mounted on 6-Wheeler, one un-mounted.

Smith 3 yd. (4¼ yd. Agitator) Hi-Discharge, un-mounted.

Rex 3 yd. (4¼ yd. Agitator) Hi-Discharge, mounted F-8 Ford Tandem.

Rex 3 yd. (4¼ yd. Agitator) Hi-Discharge, mounted I-H "LF174" Tandem.

SIX END LOADERS

Caterpillar "D-6" Diesel Tractor, Traxcavator Loader, Cab, 1950 model-excellent.

Caterpillar "D-6" Diesel Tractor w/Traxcavator. Needs some track repairs.

Cletrac "DGH" Used Gas Crawler w/Drott Hi-Lift 1¼ yd. Front End Loader. Needs some track work. Make Offer.

Hough "HM" 1½ yd. Four-Wheel Drive payloader, Reconditioned.

Pettibone "15" 1½ yd. Four Wheel Drive Tractor Shovel.

Pettibone "175D" Demonstrator 1¾ yd. (Struck) Tractor Shovel, 4-wheel drive, power shift transmission, planetary axles. New Guarantee.

MISCELLANEOUS

Barber Greene "522W" Bucket Loader, rubber-tired, reduced to sell.

Adams "411" Diesel Motor Grader, Cab and Scarifier.

Barber-Greene "705" RT Runabout Ditcher, digs 4½ ft. deep.

Chicago Pneumatic "60" Reconditioned Portable Compressor. We have 3 of these from $800. to $1250.

Universal "2036" R. B. Jaw Crusher, skid mounted, w/Apron Feeder.

Bayport 25 yd. New Aggregate Bins.

Caterpillar "D318" Diesel Electric Generator Set, 40 KW.

Caterpillar "D13000" Diesel Power Unit.

NOTE: All This Equipment Located in our Yard.

120 S. Pierpont **Phone 4-6706**

EIGHMY EQUIPMENT COMPANY

ROCKFORD, ILLINOIS

WANTED

Good Used 18" & 24" Trough Idlers, any amount.

Jaw Crushers, all sizes.

Gearmotors 3 to 15 H.P.

Late Model Vibrating Screens.

FOR SALE

700 KW Generator Set, Diesel.

350 KW Generator Set, Diesel (2).

84 KW Generator Set, Diesel.

Seco Screen, 4 x 14, 3 deck.

Seco Screen, 4 x 10, 2 deck.

Seco Screen, 4 x 8, 2 deck. (3)

Revolv. Screen, 48" x 20', trunnions.

Niagara Screen, 18" x 72", 1 deck.

Pennsylvania Hammermills, SXT-14, with 450 H.P. GE Motors (2 available).

Dodge Lever Type Jaw Crusher 9" x 15".

Climax Jaw Crusher 10" x 20", new jaws.

Champion Jaw Crusher 12" x 26".

Acme Jaw Crusher 10" x 18".

S-A Hammermill, Knittel Type.

10" Enclosed Elevator, Belt.

8" Enclosed Bucket Elevator.

6" Enclosed Bucket Elevators. (2)

Conveyor Belt 36" x 311', 5 ply.

Misc. Size Large Conveyor Pulleys.

New Idlers, 18" and 24".

Trough Idlers, antifriction, 48" & 42".

36" Trough Idlers, 5 roll type (69).

Screw Conveyor & Parts, 6" to 16".

Telsmith Sand Rewasher 28" x 12'.

Small Gasoline Water Pumps.

Westinghouse Flexarc Portable gas driven Welder on Pneumatics.

SACO Speed Reducers, 4 to 60 H.P. (9)

Parallel Shaft Reducers, 25-150 HP (11).

Wright 8 Ton Chain Hoist.

15 Ton Stiffleg Derrick, 110' Boom.

G. A. UNVERZAGT & SONS INC.

136 Coit St. Irvington 11, N. J.

FOR SALE

ONE BRAND NEW 16" SUPERIOR McCULLY GYRATORY CRUSHER. NEVER BEEN USED DUE TO CHANGE OF PLANS

PRICE $26,000.00 F.O.B. MCCOOK, ILL.

DOLESE & SHEPARD CO. (La Grange, Ill.)

Phone: Fleetwood 4-2800 • Ask for MR. DOODY

Save on Your INDUSTRIAL TRACK

FOSTER QUALITY FULLY GUARANTEED

RELAYING RAILS

Handle more cars better—cost less to install and maintain. Foster stocks all Rail Sections 12# thru 175#, Switch Material and Track Accessories.

SEND FOR CATALOGS

RAILS - TRACK EQUIPMENT - PIPE - PILING

L.B. FOSTER co.

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

1—15" x 20" Reliance Jaw Crusher.

1—12" x 28" Climax Jaw Crusher.

3—10" x 20" Champion Jaw Crushers.

1—7" x 13" Champion Jaw Crusher.

1—6" x 15" Sturtevant Jaw Crusher.

1—10" x 20" Allis-Chalmers Blake Type Crusher.

1—16" x 10 Sturtevant Balanced Type Rolls.

1—New Holland 20B Hammermill.

1—#19 Kennedy Gyratory Crusher.

1—36" x 12' Rotary Screen with Scrubber.

1—New Link-Belt 3' x 5' Shakeout Screen.

13—New Link-Belt Reducers 6—25 H.P.

JOHNSON & HOEHLER, INC.

P.O. Box 102 Lansdowne, Pa.

FOR SALE

COLLECTORS Ducon Wet and Ducon Dry both have 10,000 CFM capacity

HAMMERMILLS Jeffrey 42 x 24 and Pennsylvania S-6

ELEVATOR Centrifugal 40' centers 10 x 6 buckets—13 x 42" casing

CONVEYORS Jeffrey 18' x 12' apron type. Complete units.

Other equipment. Write for list.

G. & W. H. CORSON, INC.

Plymouth Meeting, Pa.

FOR SALE

Two (2) Model 27 T Bucyrus-Erie Blast Hole Drills, Crawler mounted, Chain and Sprocket Drive, Equipped with Telescopic Derrick and Built in Tool Wrenches. Powered by International Gasoline Motors, Water Cooled, 4 Cylinders with Twin Disc Clutch. With the following accessory equipment for 6¾" Drilling: Combination and Regular Drill Stems, Wire Rope Sockets, Drill Bits and Fishing Tools. Also one (1) Spare Jack Shaft completely installed. Will fit either unit.

One (1) #8 Bucyrus-Erie Bit Dresser Complete without Motor.

One (1) Coke Furnace with Champion Electric Blower.

All items are located at:

W. E. GRAHAM & SONS QUARRY

P.O. Box #4207 N. Sta., Winston-Salem, N.C.

ALSO SEE READY-MIXED CONCRETE AND CONCRETE PRODUCTS EQUIPMENT WHERE TO BUY ADVERTISING IN CONCRETE PRODUCTS SECTION

FOR SALE

3 10" McCully Gyratory Crushers
3 Traylor No. 412 Type TZ Gyratory Crushers
1 New RCA Metal Detector 10" x 36" aperture
1 20" Traylor Heavy Duty Finishing Crusher
4 Allis Chalmers Gates "D" Crushers, Size 6
1 Traylor Rolls Crusher—30" x 72"
1 Fuller Kinyon System
1 Allis Chalmers Compeb Mill (for Pulverizing Limestone)
1 Covered Steel Barge, suitable for carrying cement.
1 Covered Wooden Barge, suitable for carrying cement.
2 6' x 60' Dryers for Pulverizing plant

For information write:

New York Trap Rock Corporation
230 Park Ave., New York 17, N.Y.
Telephone Murray Hill 9-8500

1—42 x 40 Farrell Jaw Crusher
30 x 42 Buchanan Jaw Crusher
18 x 32 Telsmith Roller Bearing Jaw Crusher
14" x 26" Acme Jaw Crusher
10" x 20" Blake Type Jaw Crusher
9" x 36" Telsmith Wheeling Roll Br. Jaw Crusher
#32 Telsmith Gyratory Crusher
28" Telsmith Intercone Crusher
Double Chain Bucket Elevator, Bucket Size 20" x 60' Centers
10' Tandem Rome Diesel Scraper
1—100 K.W. GMC Diesel Generator Set
1—150 K.W. GMC Diesel Generator Set
16" Telsmith Gyratory Crusher
30" x 42" Pioneer Jaw Crusher and Feeder
20 x 36 Pioneer Jaw Crusher and Feeder
36" x 30' Feeder
10" x 36" Cedar Rapids Crusher
10' x 30" Telsmith Rolls
4' x 12' 3-Deck Cedar Rapids Screen
4' x 10' 2-Deck Cedar Rapids Screen
10—16 Grundler Jaw Crusher
10—20 Grundler Jaw Crusher

BLUE BALL MACHINE WORKS
Blue Ball, Pennsylvania

SPECIALS

1—New 6½' x 150' Kiln
1—28" Telsmith Intercone Crusher.
2—#330 Allis-Chalmers hydrocone crushers.
1—10½ Clyde hydrator.

KILNS

1—4½' x 40'—10½' x 200'—9' x 160'

DRYERS

1—4½' x 30'

CRUSHERS

1—48" x 42", 24" x 36", 18" x 36", 15" x 30", 12" x 24" Jaw Crushers.
2—42" x 16" Allis-Chalmers Crushing Rolls, rebuilt. 36" x 16 rebuilt Sturtevant rolls.
2—24" x 14" Rogers Iron Works Crushing Rolls, Rebuilt.
1—24" x 12" Farrell Bacon Crushing Rolls.
1—6", 10", 16", 20" McCully Superior Gyratory Crushers.
No. 3 up to No. 12 Gyratory Crushers.

BALL, ROD & TUBE MILLS

1—6' x 12', 5½' x 10' Ball Mills.
1—6½' x 15' Rod Mill.
2—5½' x 20', 5' x 22' & 6' x 22' & 7' x 24' Tube Mills.

MISCELLANEOUS

1—16' Air Separator.
1—8' x 10' Rotary Filter.

We make new dryers and kilns.

Have you any machinery that you want to sell?

W. P. HEINEKEN, INC.
50 Broad St., N. Y. Tel. Wh. 4-4236

FOR SALE

BRAND NEW—1201 LIMA DRAGLINE

85' Boom, 3 yd. Bucket

Used One Week

Job went sour—Owner will take substantial loss

Frank Swabb Equipment Co., Inc.
313 Hazleton Nat'l. Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

JAW CRUSHER
32 x 40

Austin Western — New in 1952 Drives, 125 HP Motor-Located at Montpelier Stone Co., Montpelier, Ind.

SEASTROM & CO.
2351 Kentucky Ave. CHapel 4-3346
Indianapolis, Indiana

FOR SALE

Pulverizing Plant complete for producing agricultural lime dust or asphalt filler, consisting of:

1—Allis-Chalmers 7' x 24' Compeb mill complete with motor and magnetic clutch.
2—6' x 60' Dryers.
1—Sturtevant Air separator.
1—Fuller Kinyon pump for pumping dust to hopper or barges.

In addition we have other equipment in this plant such as screw conveyors, bucket elevator, screens, etc.

For information write:

NEW YORK TRAP ROCK CORP.
230 Park Ave., New York 17, N.Y.

FOR SALE
FELDSPAR GRINDING MILL

located northeastern New York State and comprising buildings, equipment and 7 acres of land.

EQUIPMENT

1—10" x 18" Reliance fine crushing Steel Jaw Crusher
1—8' x 60" Pebble Mill and Air Classifier System, consisting of:
1—4'6" Superfine Classifier
1—6' Product Collector
Piping, Exhauster and Dust Collector
Fanborn No. 124-CD-3
1—4' x 8' Air Heater
1—Size "H" Constant Weight Feeder
1—Hardinge "Electric Ear"
(Capacity approximately 10,000 tons per yr.)
Also: Chute from Crusher to Elevator
Elevator and Chutes to Feed Bins
Feed Bins and Supports
Chute from Product Collector to Screw Conveyors
Finish Product Bin and Supports, Screw Conveyors.
Supports for piping, Classifier and Products Collector
Bagging Machine, Electric Motors, Railway Siding.

Plans available. Inspection can be arranged.

WRITE, WIRE OR PHONE

ACME EQUIPMENT & SUPPLY CO.
1637 Sherbrooke St. West, Apt. 14
Montreal, Que., Canada—Phone Wilbank 6335

EQUIPMENT LOCATED IN ALL PARTS OF THE COUNTRY

4¼' & 3' Symons, 36" Telsmith, A-C 322-R Hydrocone, 30" Superior McCully, #37½, & 38½ Kennedy, 10-A Telsmith gyratories. 3042, 2036, 2540 primary plants. 2036, 2436, 2540, 3042, 4042, 3648 jaw crushers. 4024 roll. 3630 Dixie hammermill. Marcy #86 ball mills. Rod mills 9½ x 12, 5 x 14, 6½ x 14½. One mile 42" conveyor. I. R. QM-2 drill. 25 & 80 ton diesel electric locomotives. Double drum hoist 40,000 lbs. at 500 fpm. 6 x 7 feeder with grizzly. 1000 kw diesel generator set. 10½ x 161 Traylor kiln. Complete 175 ton batching plant. 600 bbl. Butler cement plant. 5050 Cedar Rapids impact breaker. 3030 impactor plant. Crushers: jaw, cone, gyratory, roll, hammermill. Rod, ball & tube mills. Screening, washing & crushing plants. Screw, rake & bowl classifiers. Compressors. Conveyors. Drills. Dump cars. Engines. Feeders. Generators. Hoists. Kilns & Dryers. Locomotives. Motors, Pumps. Screens. Shovels & Draglines. Trucks. Transformers. Weightometers.

STANLEY B. TROYER EQUIPMENT CO.
Box 97 — Crosby, Minnesota — phone 500

DEPENDABLE USED MACHINES

Special: Pioneer-Ore all-Manganese-steel apron feeder 42" wide, like new.

Mesabi 5 x 12 screen	Cletrac DGH with Drott 1½ yd. loader	Unit 10-20A crane
Telsmith 4 x 10 screen	Pioneer port. gravel plant	NW 1 yd. crane
30" x 200' conveyor	Symons vibrating bar grizzly	Osgood 200 crane
30" x 128' conveyor	Recip. feeder for 30" belt	Insley K-12 crane
30" x 43' conveyor	American 20 HP car puller	16 x 16 roll crusher

This equipment rebuilt in our modern plant by expert mechanics. Come see it.

10030 Southwest Highway — TRACTOR & EQUIPMENT CO. — Oak Lawn, Ill.

SAND-GRAVEL PLANT

Nebraska. Grosses between $60,000 and $90,000 yr. Contacts, county roads. Est. 20 years. Complete equipment. $78,500.

REO
6 W. 10th, Kansas City, Mo.

FOR SALE

One 9' Yuba dredge, electrically powered. Complete with or without machine shop. Located near railroad in Eastern Oregon.

BOX O-74, ROCK PRODUCTS
79 W. Monroe St. Chicago 3, Ill.

FOR SALE

Like new, Mobile Crane, Bay City, 12½ Ton, Model #150, Machine #6737, 60' Boom, 10' Jibe, Mounted on a Marmon Truck.

Coo-Par Concrete Corp.
Box 67, Madison, Indiana
Phone Collect 7-3091

ROTARY DRYERS & KILNS: 4'6" x 40'; 4'6" x 32'; 3'6" x 25'; 3' x 24'.

ROTARY COOLERS: 104" x 30'; 104" x 70'.

BALL MILLS: 6'x22" conical; 5'x22' unused, 6'x16', 5'x9', 6'x5'.

MINE HOISTS: 24"-36" dia. x 18"-24" wide, Single & Double Reduction.

AIR COMPRESSORS: 75 HP - 280 HP. 889 CFM to 2230 CFM.

JAW CRUSHER: 8" x 10".

WE WILL PAY CASH FOR GOOD USED EQUIPMENT

PERRY EQUIPMENT CORP.

1418 N. 6th St. — Philadelphia 22, Pa.

STevenson 4-3505

---

25 ton MM Crush, Lorain MC414 **CRANES.**
DRYERS: 4½x40, 5½x28, 5½x10, 6x60, 10x101.
30 ton **HOIST** & Swinger. 150 ton Fluor.
CRUSHERS: 440, 1020, 1040, 1524, 1836, 2036, 2436, 2540, 4836, 4042, 4248, 8466. **JAW,** #19-27½ Kennedy. 16", 18", 20", 30", 36" McCully, 2'-6" Traylor GYR. 2 & 3' **CONES.**
PLANTS: AW81, Pitmaster, Pioneer 305W.
3' & 14' Air **SEPARATORS.** Scrapers.
Cat. 1r8800, D13000, D17000, GMC 280 HP **DIESELS.**
MILLS: 4½x16', 6x8, 6x15, 6x22", 7x22" Ball, 4x15, 6x14, Rod. 5½x22 Tube. 3660, 4248 Williams, 3674, 4224 Jeffrey, CR2035, 4053 Hammer.
Apron **FEEDERS:** 3½x12, 3½x16, 4x14, 4½x16'.
WASHERS: Eagle 14"x14', 10"x12', 20"x18', 7x30.
SHOVELS & DRAG: Bucyrus 22B, 28B, NW5, 6, 7, 80D. Link Belt LS50, LS90. Genl 420. Koehring 605. Marion 40A, 92. Lima 1201

Repres: Bonded Scale & Machine Co.

Mid-Continent Equipment Co., Inc.

8321 Gannon St. Louis 24, Mo. — Wydown 1-2826

PIONEER 54 x 24 **TRIPLE ROLL** Portable Plant w/36" x 25' feeder conveyor, 30" x 19' delivery conveyor, mounted tandem pneumatics. Model 5309, New 1953. Used intermittently in soft limestone rock. Wt. 69,000 lbs. Bargain. $17,500.

CEDARAPIDS 18 x 24 r. b. Jaw Crusher Portable Primary Plant w/plate feeder & vibrating grizzly screen, undercrusher conveyor, power unit. Factory mounted on tandem rubber. Excellent. $6000 Rental Purchase.

LIPPMANN Single Unit Portable Rock Crushing & Screening Plant w/18 x 36 r. b. Jaw Crusher, apron feeder, 30 x 18 r. b. Double Roll, 3 x 10 vibr. screen, rotovator return, mounted tandem pneumatics. Good. $14,500 Rental Purchase.

CEDARAPIDS 2540 Portable Jaw Primary Plant w/apron feeder, underconveyor, diesel power, factory mounted tandem pneumatic tires. Good. $21,000.

UNIVERSAL Portable Secondary Plant w/30 x 18 r. b. Double Roll & #3 hammermill crushers, 36" conveyor system, rotovator, 4 x 12 2-deck screen, diesel electric generating set, diesel power, mounted tandem rubber. Rebuilt. $17,500 Yard. Rental Purchase.

UNIVERSAL 20 x 36 r. b. Portable Jaw Primary Plant w/apron feeder, underconveyor, diesel power, on tandem rubber. $13,500. Rental Purchase.

ROGERS 21 x 40 r. b. Jaw Crusher Portable Primary Plant w/feeder, conveyor, diesel power on tandem rubber. Secondary Portable Plant w/30 x 40 hammermill, 5 x 12 3-deck screen, rotovator, diesel power, on tandem rubber. Also Portable Screening Plant to go with this. Excellent. Yard.

DIAMOND 24 x 36 r. b. Jaw Portable Primary w/apron feeder, conveyor, Cat. diesel, mounted tandem rubber. Diamond Secondary Portable 95 Plant w/40 x 22 r. b. Double Roll, 4 x 12 2-deck screen, Cat. D17000 diesel, mounted tandem rubber. Good. $37,500 both. Rental Purchase.

UNIVERSAL 20 x 36 r. b. Jaw Crusher, good. $4850 Yd.

UNIVERSAL 24 x 36 r. b. Jaw Crusher w/feeder, hopper, on skids. $11,250.

AUSTIN WESTERN 10 x 16 p. b. Jaw Crusher. Good. $400 Yard.

SUPERIOR MCCULLEY 30" Gyratory Crusher w/electric motor. $24,000.

SUPERIOR MCCULLEY Fine Reduction Crusher, 6" opening, w/50 hp. motor. A1. $3,000.

MCLANAHAN 18 x 36 Single Roll Crusher. Good. Yard.

CEDARAPIDS 30 x 33 Hammermill, excellent. $2650.

LIPPMANN 24 x 32 Hammermill, like new. Yard.

JEFFRIES 36 x 36 Hammermill, B3, with Cat D337 diesel power. Yard.

ROBBINS 4 x 10 2-deck Gyrex Screen w/adjustable cast iron base. Good. $1350 Yard.

DIAMOND 3 x 6 heavy duty Vib. Screen. A1. $400 Yard.

SIMPLICITY 3 x 6 2-deck Screen. $500 Yard.

SIMPLICITY 4 x 12 2-deck horizontal Screen. Yd.

CONVEYOR, Portable 20" x 36' w/new belting, gas powered, on rubber. $1350 Yard.

CONVEYOR, 18" x 120' lattice frame w/motor & reducer. $1250 Yard.

PIONEER 48" x 30' Portable Apron Feeder. Yd.

LORAIN L50 Shovel, new 1950. Yard.

BUCYRUS ERIE 22B Electric Mine Shovel, #94146. Yard.

GARDNER DENVER 500' Electric Air Compressor, late model. Yard.

GARDNER DENVER D Jumbo Mine Drills on Tractor. Yard.

WENZEL MACHINERY RENTAL & SALES CO.

365 S. 10th — Mayfair 1-1710 — Kansas City, Kan.

New — RAILS — Relaying

All sections available together with all accessories. Also Spikes, Bolts, Cars & Locomotives.

M. K. FRANK

480 Lexington Ave., New York, New York
Reno, Nevada

Park Bldg. Pittsburgh, Pa.
Carnegie, Pa.

Lancaster 6' dia. Vert. Mixer 25 HP.
Kent Model #2 Continuous Mixer.
Raymond #00 and #1 Pulverizers.
Kilns, Dryers, Filters, Hammer Mills, Crushers.

SEND FOR COMPLETE LISTINGS.

STEIN EQUIPMENT CO.

107 8th St., Brooklyn 15, N. Y.

Tel: Sterling 8-1944

EQUIPMENT WANTED

WANTED

Apron or Pan Feeder

Used, good condition big (the bigger the better) apron or pan feeder to feed 36" x 48" jaw crusher. Must be able to handle raw limestone passing 1½ yard bucket and reasonable in price.

PAUL LIME PLANT

PAUL SPUR, ARIZONA

WANTED

Steel Building or Quonset

We are located 40 miles West of Philadelphia, 14 miles South of Reading Pa.

MAXWELL'S HILL LIME QUARRY

R. D. 2, Elverson, Penn.

CRUSHERS WANTED

One Jaw Crusher 24 x 30 up to 30 x 40.
One McCully No. 6 Fine Reduction Gyratory Crusher or equivalent.
Send all information in first letter.

BOX 0-94, ROCK PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

Used 24" field conveyors—electric drive.
Need approximately 400' in 75 to 100' lengths.
Can use one long belt up to 250'.

BOX 658, ARGENTINE STATION, KANSAS CITY 6, KAN.

WANTED

Komarek-Greaves briquetting machine. Will consider any size and condition.

BOX 0-89 ROCK PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

CONSULTING ENGINEERS AND SERVICES

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

E. LEE HEIDENREICH JR.

CONSULTING ENGINEERS

75 Second Street
Newburgh, N. Y.
Phone 1828

9 South Clinton St.
Chicago 6, Ill.
Ph. Franklin 2-4186

Operation
Plant Layout
Design
Appraisals
Construction

FOUNDATION TESTING. CHEMICAL ANALYSIS

CORE DRILLING

THOMASVILLE DRILLING & TESTING CO.

THOMASVILLE, PENNA.

CORE DRILLING

--anywhere!

"We look into the earth"

PENNSYLVANIA DRILLING COMPANY

Pittsburgh 20, Pa.

FOR SALE

1 Tandem drive White 3 Cubic yard Jaeger Mixer
1 Tandem Drive Autocar 5 Cubic yard Jaeger Mixer
1 K-8 International 5 Cubic yard Jaeger Mixer
1 Autocar Half Track
1 D-H 9 High Lift
All equipment is in good condition, Is in use every day.

V. H. FLANNERY BLDG. MATLS. INC.

574 N. 20th St. — E. St. Louis, Ill.

Phone: Bridge 1-8329

FOR SALE

3—8' x 9' x 100' Vulcan Kilns, ⅜" riv. plate, complete with motors, drives and hoods.
4—6' x 22' Tube Mills, trunnion discharge, with 400 HP, 450 RPM, 440/3/60 motors.
4—5½ x 22' Tube Mills, trunnion discharge with 200 HP, 440/3/60 motors.

CHARLES V. FISH CO., INC.

530 Hamilton St., Allentown, Penn.
PHONE: HEmlock 5-4701.

FOR SALE

2—12 ton, 36" Gauge, Model JLA PLYMOUTH locomotives—Serial #5119-5120.
1—10 ton 36" Gauge Model DLC BUDA Engine Plymouth locomotive Serial #3385.
1—10 ton 36" Gauge JLA PLYMOUTH locomotive.
6—6 Cubic Yard 36" Gauge all steel, Pressed Steel Car Co. side dump cars, Timken Bearings.
8—5 Cubic Yard, 36" Gauge, Square side dump cars, Plain Bearings.
50—40 lb rails.

FOLEY & BEARDSLEE, Clarkston, Mich.

ALSO SEE READY-MIXED CONCRETE AND CONCRETE PRODUCTS EQUIPMENT
WHERE TO BUY ADVERTISING IN CONCRETE PRODUCTS SECTION

WANTED
HELP — POSITIONS

WANTED

Mechanical Engineer needed by large cement company. Opportunity for training and advancement. Write, giving complete details of education, experience and salary desired. Confidential.

BOX 0-79, ROCK PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

Equipment Maintenance Superintendent

A challenging position is now open to the right man to take charge of one of the largest fleets of on and off highway trucks, bulldozers, cranes, shovels, and other contractors' equipment in the United States. Please write, giving employment history and salaries earned.

BOX 0-90 ROCK PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

Industrial Sand Plant in New Jersey has opening for man to assist Superintendent in the operation and maintenance of Plant machinery and equipment. Knowledge of conveyors, elevators, pumps, mechanical and electrical equipment essential. Good opportunity for the right man. Give complete personal data, age, education and experience. All replies will be treated confidential. **Box 0-87, Rock Products, 79 W. Monroe St., Chicago 3, Ill.**

WANTED

Chemist or Assistant Chemist familar with Cement plant analysis and operation. Permanent position. Freeport B.W.I., 60 miles from Palm Beach. No taxes on earnings.

International Engineering Assoc., LTD.
654 Madison Ave., New York 21, N.Y.

WANTED

Geologist with engineering experience by a large cement company. State education, experience and salary desired. Must be willing to travel.

BOX 0-80, ROCK PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

GENERAL MANAGER — Large midwest quarry is seeking an experienced resident plant manager. Plant personnel consists of well qualified department heads under competent general supervision and engineering staff. Applicants must be experienced in all phases of crushed lime-stone production for metallurgical and construction purposes, personnel management, labor and public relations and purchasing. Give complete personal data, age, education, experience and references. All replies will be treated confidentially.

BOX 0-72, ROCK PRODUCTS
79 W. Monroe St. Chicago 3, Ill.

CHIEF ENGINEER

Leading Company in Materials Handling Field has a challenging opening for a top-flight Aggregate Plant Designer. Must be familiar with plant layout, equipment selection and steel design. Job located in New York area.

- Salary open
- Exceptional Employee Benefit Plan
- A future with a good present

Send resume including salary requirement to:

BOX 0-92, ROCK PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

Qualified personel to work on erection of new cement plant at Grand Bahama Islands, 80 miles from Palm Beach. Permanent jobs available on completion of plant to run operation: Electrical, Mechanical Millwrights, Chemists and Management personel.

International Engineering Assoc., LTD.
654 Madison Ave., New York 21, N.Y.

INDEX TO WHERE TO BUY

INDEX TO DISPLAY ADVERTISERS

One DRILLMASTER replaces four churn drills!

At the above open pit mine, one DRILLMASTER is now doing the work formerly requiring four churn drills. It is sinking 6" blast holes to a depth of 75 to 180 feet, with a 15 foot hole spacing and 20 to 25 foot burden. *All blast holes are drilled by the Drillmaster at a 15° angle from the vertical in order to take full advantage of bedding planes and to overcome a severe toe problem.* DRILLMASTER Carset Jackbits are delivering a total life of up to 4000 feet of hole.

The "down the hole" Depth-Master drill is a feature of the Ingersoll-Rand DRILLMASTER. Going down the hole with the bit, it applies full drilling impact directly to the bit at any depth of hole. Thus the power losses in long drill steels are avoided. The DRILLMASTER can also be used as a Rotary drill or as an "out of the hole" Power-Master drill.

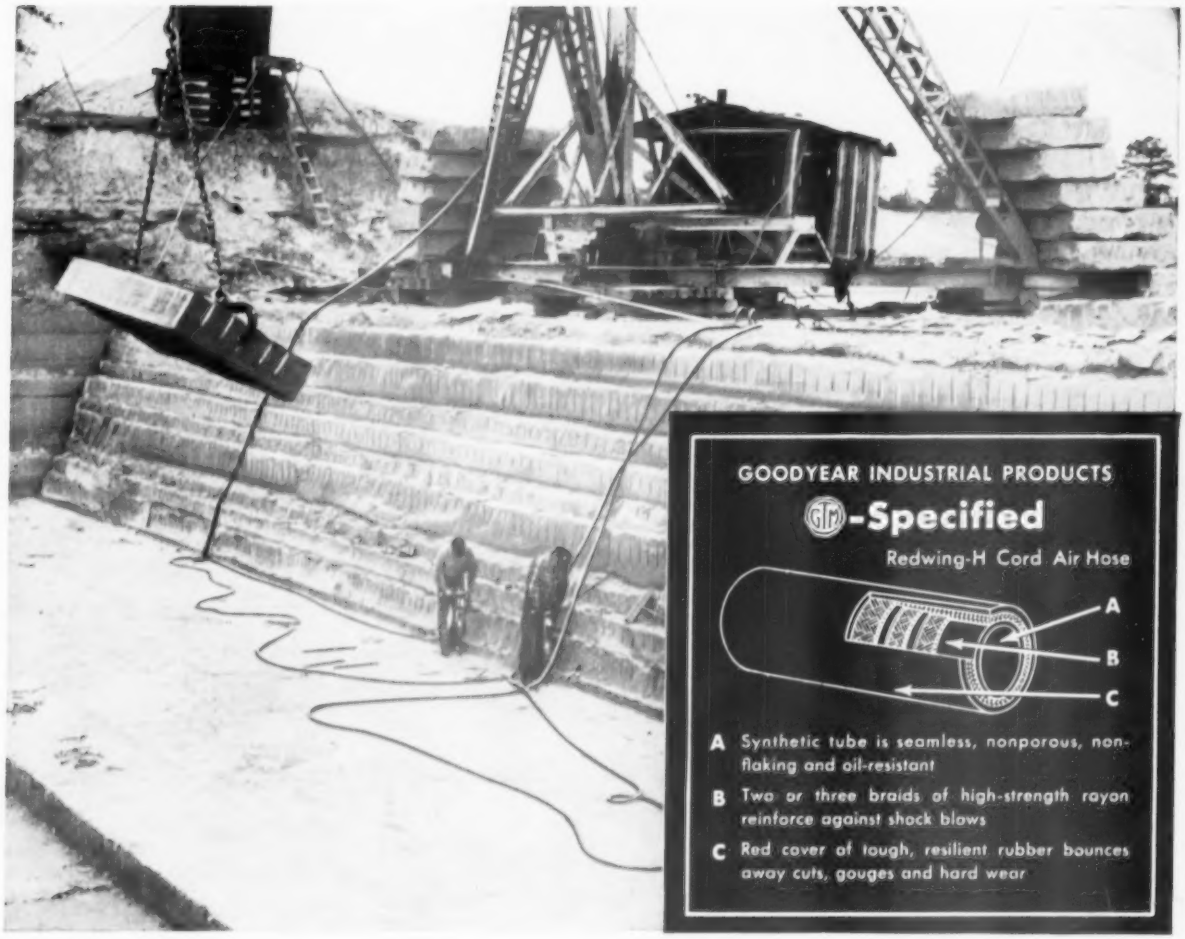
Complete packages — including tower and accessories — are available for tractor or truck mounting. For further details, send for Bulletin 4179.

Ingersoll-Rand
11 Broadway, New York 4, N.Y.

5425

DRIFTERS • JACKDRILLS • JACKHAMERS • WAGON DRILLS • CARSET BITS • AIR TOOLS • COMPRESSORS

Enter 1428 on Reader Card



G.T.M. cuts jackhammer hose costs over 50%

About four months was the average service for air hose on the jackhammers in this Midwestern quarry. Extreme abrasion, cutting and gouging plus direct blows from heavy rock were the reasons for early failure.

REDWING-H Cord Air Hose (see blueprint) was specified by the G.T.M.–Goodyear Technical Man. This rugged hose takes the beating in stride–lasts over a year–three times as long–cuts costs by more than half.

Similar savings may be yours, on hose or any industrial rubber goods, by consulting the G.T.M. You can contact him through your Goodyear Distributor. Or write Goodyear, Industrial Products Division, Akron 16, Ohio.

Redwing – T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

REDWING-H CORD AIR HOSE by

GOODYEAR

THE GREATEST NAME IN RUBBER

IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

Enter 1400 on Reader Card